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MANCHESTER.

As we publish this week some of the designs for the extension of the Manchester Royal Exchange, the result of which will settle one section at least of a long controversy, the present is an opportune time for a glance at the architecture of Manchester.

The impression conveyed to the outsider unacquainted with the city is one of great architectural activity; it recurs to one's mind as the centre of much discussion upon the subject of its projected buildings. One remembers the schemes for its Cathedral a generation ago, but fresher in the memory are the Piccadilly site and the demolition of the old Town Hall; and, with the turmoil in the Press and in the Council Chamber echoing in our ears about much matter of architectural bearing, we come to the city with some expectation of things accomplished. But Manchester is a city of unsettled problems and still-born schemes, and the only notable occasion in recent years, when anything concrete was the outcome of its discussions about its civic architecture, is the half-hearted gothic monument in St. Peter's-square which replaces St. Peter's Church, a building of much sounder quality. One other impression which the outsider brings, and for which he finds surer justification, is of the all-prevalent influence of Alfred Waterhouse. It is strange that little is known of the finest of Manchester's architecture.

It is not possible to enter Manchester by rail, except under cover of the night, without seeing some of its worst at once. There is always a sort of penumbra of slums around a great city's nucleus, and this is shamelessly exhibited to the traveller approaching from whatever quarter. At Exchange and London Road Stations a backward glance at the station will show a building of great sturdiness and worth, but one finds little display of the fine buildings in the more important streets. Many of them are hidden in unfrequented thoroughfares, and where it occupies by some accident a position of any importance it usually loses most of its glory by the meanness of its setting. The great handicap in Manchester is the lack of a really great central building. The reason why Liverpool is thought of as a city of fine buildings is St. George's Hall. Whatever a visitor sees and admires in Manchester, he finds no climax, and goes away unsatisfied. And yet the Piccadilly site is empty.

Like so many English cities, the present plan of Manchester was largely determined by the unforeseeing and unimaginative planning of generations ago, and the only developments which have taken place have been in the nature of "improvements," mainly street-widenings, undertaken piecemeal and at enormous cost. Its open spaces—as, for instance, Albert-square—are badly shaped, and are entirely fruitless of any real effect; and the chief reason for their being open spaces was probably that now advanced regarding the Piccadilly site—that they happened to become empty.

The city is not without its stately streets. Portland-street, a wide street lined with great warehouses, is distinctly impressive, and Oxford-street has picturesque qualities largely contributed to by Mr. Paul Waterhouse's new tower to the Refuge Assurance Building, and many of the warehouse streets, unfrequented by the multitude, but given over to a ceaseless traffic of lorries, are a continual delight to those who explore them. Upper Brook-street, one of the great arteries leading from the city, while fast being absorbed into the squalor and decrepitude which seems inevitably to overtake these abandoned regions, contains many fine houses of eighty to a hundred years ago, and one can still delight in the old stucco and brick façades, Georgian doorways, and lead fanlights. In Salford many fine old houses still remain—The Crescent, Leaf-square, and some of the houses remaining in the old streets have a delightful old-time formality which contrasts sharply with the mass of pretentious stuff so quickly supplanting them. Such merit as the streets have is due to these old buildings; the modern buildings may only be judged individually—they take part in no harmony, and, as a rule, they are sharply discordant with their neighbours, save only when in sharp perspective the dissonances are lost. Viewed thus, even the jostling irreconcilable façades in Deansgate take an unexpected stateliness.

Two notable buildings come down to us from mediæval Manchester—Chetham's College and the Cathedral. The former is a good example of fifteenth-century collegiate design, an old-world building whose cloistered court is in strong contrast to the busy world without. The Cathedral, more justly to be regarded as a great parish church, though dull and sprawling outside, has an interior astonishingly impressive in view of its actual dimensions; the beauty of the lighting and the intricacy of the cross views due to the five aisles compensating for more monumental qualities, and its choir-stalls and screens are unequalled by the woodwork of the great cathedrals themselves. A few picturesque half-timber houses are almost all that remain besides of the mediæval town.

Mr. Basil Champneys' west porch and extensions at the Cathedral bring us naturally to his Rylands Library, unobtrusively placed in Deansgate, with an interesting exterior which hints little to the passers-by of the glories of its interior. Some of the detail is of its own day only, but the sublimity of the conception is real and moving.

Pugin's St. Wilfrid's Church at Hulme does not betray much of his fire, but is interesting as the church he was wont to quote in support of his contention that the Gothic section was cheaper than the Classic, and we are reminded of old battle-grounds. The greatest Gothic building in Manchester is Bodley's St. Augustine's, Pendlebury, an unrivalled example of what a city church should be. It is designed with all Bodley's surety of handling; the detail has all the subtle qualities of his work, and there is a daring originality in the whole scheme which is carried victoriously through and places the conception infinitely above the archæological work of many of his contemporaries. Platt Church is the work of Edmund Sharp. The recent movement for cheap church building, far from being a stimulus towards simplicity and breadth, has fallen like a blight upon the church architecture of the city—depressed roofs, terra-cotta tracery, flimsy timbers, and thin walls are the most evident devices to secure economy. Messrs. France & Laycock's Congregational Church in Dickenson-road indicates a way out.

There are a few buildings of the earlier Renaissance style extant, which still give a flavour of the early eighteenth-century life of the city. St. Ann's Church, once the fashionable church of the merchants and their families who lived in the city, has been variously attributed to Wren and to his pupils, but is really the work of an unknown architect of his school. It is a provincialised version of Wren's city churches, very refined and dignified, and altogether one of the buildings the city could least afford to lose. Its interior is marred by fittings by the late Mr. Waterhouse in an unsympathetic manner. Cross-street Chapel and the bank in King-street are of the same time. They are brick and stone buildings, of broad and simple design, and the latter has a fine bold doorway of slightly later date, the former containing good woodwork from the same hand as St Ann's Church and some fine old chandeliers.

The great buildings of Manchester belong to the next epoch, the earlier years of the nineteenth century. There was a local

school of architects who designed with great vigour, whose work was reinforced by men of wider renown, like Barry, Cockerell, Wyatt, and Francis Godwin; and the result is a series of buildings on a monumental scale which vie with those of Liverpool and Dublin. We are glad to note that the students of the School of Architecture are encouraged to measure these fine buildings, and that there is a strong movement in the direction of linking up modern design with this climax of local architecture eighty years ago, and re-establishing a continuity of tradition which would bring more coherence into the city architecture.

The old Town Hall, now demolished, was one of the finest of these works, and contained a suite of ceremonial apartments which one would think the municipality would have some use for. Its dignified façade is rebuilt in Heaton Park without any hitherto satisfactory effect. Cockerell's Bank of England is a fine virile design, the counterpart in the Greek manner of the Romanised Doric bank at Liverpool. Barry's work must have had great influence at the time upon the work of the local school. His Athenæum is a vigorous straightforward building after the model of his Reform Club in London. The adjoining Art Gallery is weaker, but is a fine composition of great purity of design, with a well-conceived staircase hall. The rest of its interior has been remodelled. A well-designed warehouse by Barry has recently been destroyed. Wyatt's St. Peter's Church has also disappeared, but his hall in Heaton Park is a fine example of the Adams mansion. The exterior has an air of artificiality, but the detail is very refined and scholarly; the interior, however, is entirely successful. It is planned on formal lines, the vistas are extremely effective and cleverly devised, and the staircase and larger rooms are of noble proportions, and everywhere the detail is of that exquisite delicacy which one associates with the Adams school.

We come now to the work of the distinctly Manchester school, which is no less important than that we have reviewed. In the hands of men like Walters and Greggan the requirements of the city warehouses of their day (which were vastly different to those of to-day) were turned to fine architectural purpose. There is splendid dignity in their façades—notably in Messrs. Greg's, Messrs. Henry Bannerman's, and Messrs. Haslam's warehouses. Walters' works include the Manchester and Salford Bank, Mosley-street, fine astylar composition on an immense scale, the Free Trade Hall, the Brazenose Club, and several fine warehouses. He designed in a truly grand manner, and with so keen an insight into the qualities of masonry in city architecture that his buildings tell as magnificently in their present sooty blackness as ever they did. Greggan's work is more refined and less masculine, but is still sturdy and distinguished by a perfection of proportion and detail. His bank in St Ann's-street has a wonderful impressiveness for so small a building, and its interior is very successfully treated, and the old Technical School is a most scholarly building. Somewhat later in date, but of the same spirit as these buildings, is a singularly beautiful warehouse in Fountain-street by the late Thomas Worthington, a composition in which a narrow and tall frontage is treated with great freedom and originality and with most telling result. Among these buildings which exhibit such architectonic qualities are the Portico Library, which has a fine domed interior, a very simple Wesleyan Chapel in Oxford-road, the Theatre Royal, and many commercial buildings which in their directness of style and freedom from anything ephemeral make a lasting and certain appeal.

The descent from the works of this fine school, as coarseness and too great freedom crept in, is illustrated by buildings which often have certain qualities of scale and sometimes of originality, but too often betray the growing tendency to play with the pretentions; and by gradual but certain stages the terra-cotta age was reached and warehouse building began to illustrate some of the worst phases of modern design.

The times are not without signs of better things. The old warehouse type is, of course, an anachronism now that the commercial demand is for vast window space. It is no part of the mission of modern architecture to shirk modern problems and seek to impose old types upon new conditions. There are ample specimens of compromise which prove that if the usual method of fenestration is not discarded the wall surfaces are bound to be so cut up that no sound architectural result can be obtained. Three or four of the great commercial buildings painfully illustrate this, especially some of the Whitworth-street warehouses and the façade of the Calico Printers' Association, where the multitude of little windows create a sort of texture from which the architectural embellishments struggle vainly to emerge. The late Mr. Sankey's warehouse for Messrs. Tootal, Broadhurst, Lee, & Co. was fifteen years before its time, and indicated a solution which architects have been loath to follow. The premature death of this gifted architect robbed Manchester of one who would have done great things in its streets; but he has left the most successful modern warehouse in the city. It becomes clearer every year that a frank acceptance of modern conditions is the only possible road to success for architects to take, and two recent warehouses, one by Messrs. Fairhurst & Hunter in Whitworth-street and a fine one by Messrs. Henry Goldsmith & Son in Granby-row, show that surer formulæ are being more and more understood.

Numerous and perilous excursions into the region of new materials have been made in recent years to discover a material suitable for the architecture of a smoky city, it must be confessed without any signal success. The two last-mentioned warehouses are in new forms of terra-cotta, about the future of which it is impossible to forecast. It is not an indisputable premise that a clean building is necessarily better than a reasonably dirty one; and it is certain that many of the materials which have been tried, whatever their washable qualities, have not given us buildings equal to the black stone ones of earlier years, and many of them are hard and unprepossessing in the extreme. On the whole we think it must be concluded that Portland stone, with its invaluable property of bleaching in however dirty an atmosphere, has given the best results. The old General Post Office is still the most beautifully weathered building in Manchester.

Turning to the modern buildings of other than purely commercial purpose, there has been a vast amount of activity without much outstanding success. It is regrettable that so much of the public work is the product of official architecture. All the schools are designed by the Education Authority, and are marked by extraordinary dullness and lack of imagination in both planning and design. That many of the public buildings carried out by the municipality are deplorable is simply the fault of the system. Among the more important buildings designed by architects are the Royal Infirmary, by Messrs. Hall & Brooke, an enormous area of buildings with a well-grouped front rather too exciting in its brick and stone texture; several buildings at the University which do not rise to the level of Waterhouse's original work, which in its turn is not of its best. It is a great relief that the Gothic tradition there is interrupted. Messrs. Worthington & Son's new Arts Building makes a breach with an unsatisfactory past. The same firm has carried out two students' hostels in a happy combination of domestic and collegiate design, remarkable for the clever selection and treatment of the materials. Mr. Edgar Wood's Christian Science Church in Victoria Park strikes one as a somewhat bizarre work, but its grouping is extremely effective, and there can be no doubt of the success of the interior, where a gorgeous marble treatment of the rostrum end is contrasted with extremely simple white plaster wall surfaces and a massive open timber roof. Messrs. Richardson & Gill's New Theatre, the most important building of the year, is a Neo-Grec design on a big scale, and worthy of better materials than its stucco.

The success of the future of Manchester architecture depends largely upon its School of Architecture. The haphazard methods of training in the past have left their mark upon the country, and one of the most hopeful signs for the future is the increased possibility of the academic training of architectural students. The Manchester School of Architecture will do much to re-establish the tradition of the local school so unfortunately broken in the medley of styles which succeeded it. We have recently reviewed exhibitions of the students' work in these columns, which seemed to us to show that there are young men of ability who are being thoroughly trained upon right lines.

The city has up to now accomplished nothing of any importance in the field of town planning. A small garden "village" at Burnage, privately promoted, was at first a very successful piece of work; but—perhaps through too great success—has become overcrowded. Some time ago the City Council promoted a competition for the development of the Blakeley Estate—an area marred already by the Council's own experiments upon it—but no steps have been taken towards carrying it out. Meantime the by-laws become more and more drastic, and suburban building is less certain of economic success. The outskirts of the city are a terrible example of the primitive methods of estate development which still obtain, and acres of land are given over to the dreary waste of semi-detached villas and deadly, uninteresting streets. The

Manchester Society of Architects has been active in producing model schemes for the development of certain suburban areas and traffic centres in the city, and in bringing them before the public; but the authorities show little sign of taking architects into their counsels.

There are no immediate prospects of great developments in matters civic and architectural. Two problems still loom in the public mind—the future of the Piccadilly site and the provision of further accommodation for municipal offices. The former is much simplified by the settlement of the Exchange question and the adoption of the plans placed first in the competition just concluded. Hitherto the project of building a Municipal Exchange on the Piccadilly site has received strong support, but is now put out of court, largely by reason of the businesslike methods with which the Exchange directors have launched their scheme and carried it through Parliament and up to the present point, while the City Council has vacillated between Exchanges, Art Galleries, and open spaces. The question is now whether a building is to be erected in Piccadilly at all. Architecturally there is no question. The space is so badly shaped and the buildings surrounding it are of so little distinction that it would be a failure as a "place," whereas a fine monumental building—not necessarily a large one—in the middle would have ample space, and the attention would be drawn to the centre from the irregular and unsatisfying surroundings. It will be a disgrace if this splendid opportunity of giving the city its climax is lost.

A suggestion made recently for an extension of the Town Hall similar to the Glasgow scheme did not receive much encouragement. It is, however, imperative that additional accommodation be provided, and excursions are being made in a direction in which the authorities have always manifested much ingenuity—that of altering their old buildings. A surprising number of public buildings in Manchester are used for purposes other than that for which they were originally designed.

NOTES.

Westminster Hospital Site.

THE announcement that the negotiations for the sale of the site of Westminster Hospital to the Dominion of Canada have fallen through presents another opportunity for considering whether this site should not be acquired by the public. From every point of view it appears advisable that public control should be exercised over its future disposition. Apart from the question of local improvements and the proper relation of any new building to the Wesleyan Hall, and such other points as might be considered chiefly to concern the City of Westminster, there is the question of the surroundings and approaches to Westminster Abbey. This question appears to be one with which the Imperial Government can rightly concern itself. It is not necessary to point out the unique position in our national life occupied by Westminster Abbey, or to do more than again refer to the utter inadequacy of the approaches to its principal entrance. Here we have the scene of perhaps the most solemn and splendid of all our State ceremonies. In feudal times, when kings were more or less despotic, their arrival at the place of their coronation was an affair that chiefly concerned the favoured few. It is quite easy to understand that there may even have been reasons why large open spaces, capable of holding enormous, and possibly antagonistic crowds, were not considered desirable by those who had the upper hand. Broad Sanctuary may have been large enough for a feudal England with a small population. But in these days, when the King reigns by the will, and with the good will, of his people, the whole sentiment of the matter is changed. If we were to provide an open space at the west end of the Abbey of a sufficient size to accommodate the people who would congregate from all parts of the Empire, provided they were afforded proper facilities for witnessing and taking part in the culminating ceremony of the procession to the Abbey, we should have to take the piazza of St. Peter's at Rome as our *motif*, and enlarge it till it had some proportion to the total number of those who owe allegiance to the King of England. Exactly what influence such considerations have on the development and welfare of a State is not sufficiently considered nowadays, but it is evident that it is a point that has its bearing on the science of government, and that would be a suitable matter for the consideration of a Ministry of Fine Arts.

Modern Cathedrals.

THE simultaneous formation of the three new dioceses of Sheffield, St. Edmundsbury and Ipswich, and Chelmsford is, we suppose, a somewhat unusual occurrence in the history of the Church. If a cathedral church is the necessary centre of every diocese, the erection of three new cathedrals might reasonably be expected. Were we living in the Middle Ages such an expectation would no doubt be fulfilled, but in this year of grace we fear it would be doomed to disappointment. Many new dioceses have been created during recent years, chiefly in the more populous districts of the Northern Midlands, but with the exception of Liverpool we cannot at the moment remember any instance of the erection of an entirely new cathedral. The procedure usually adopted is to take the largest or most conveniently situated parish church and make such alterations and additions to it as will enable it to serve the practical purposes of a cathedral. We are aware that there are financial and other reasons for this procedure, but all the same we think it is to be regretted from the artistic point of view. A cathedral is not just a parish church writ large. The two buildings serve different purposes and are arranged to express different ideas. By no method of addition or adaptation can the largest of churches be made into a perfect cathedral. The best that can be achieved is the destruction or mutilation of a church in exchange for an inadequate cathedral. In the case of Truro the additions and alterations to the old church were so extensive as to practically amount to a new cathedral incorporating the remains of the church. It cannot be said that the total results were as good as they might have been had the church been left alone and an entirely new cathedral built elsewhere. Apart from that interference with old buildings so much to be deprecated, this procedure prevents the creation of architectural conceptions expressing the religious feelings of the present day, and both architecture and religion suffer in consequence.

The London Society.

THE London Society's Dinner on Tuesday last preceded the most successful of all its meetings. Sir Aston Webb's address on "London of the Future" was excellently conceived and suggestive, and afforded ample material for thought. The standpoint taken, that of 2014, allowed the speaker to treat lightly and generally of admitted improvements which time may bring without entering into the debatable land of dispute, which is too often characteristic of the point from which we must start in inaugurating reforms. We were specially struck with the thoroughness and sweeping character of some of the reforms mentioned. The sweeping away of visible signs and tokens of our railways within a 12-mile limit of Charing Cross is delightful, and the suggestion of two termini for north and south respectively, marked by architectural temples forming colossal waiting halls and connected by lifts with the railways under, was masterly. We believe, if Sir Aston would only take the task on, that he could reconcile the City lamb with the County Council lion, and his claim to the title of a Peacemaker will always be among the greatest of his many claims on the gratitude of the architectural profession. If so many delightful ideas occur to Sir Aston Webb when he dreams it may be seriously questioned whether he should not induce continuous slumber, since he can turn it to so good an account. We trust that we shall all live to eat Thames salmon caught within the confines of the City of London, and that the London Society may receive the support of many new members as a result of its energetic efforts on behalf of our great city.

The Labour Crisis.

THE present trouble in the building trade, which will reach its crisis by the end of the week, appears to be caused not so much by the organisation of labour as by the insufficiency or incompleteness of this organisation. The action of the employers in asking for an undertaking from each individual workman not to strike on account of the employment of non-union labour seems to be directed not so much against the trade societies as against the failure of these societies to induce their members to keep agreements entered into by their duly authorised representatives. This failure is, we think, to be regretted. If in the process of evolution towards a better adjustment of the claims of capital and labour it is inevitable that both must organise, the more complete this organisation is the better for both and the better for the community they both serve. We can quite understand that the present state of affairs, which appears to be neither one thing nor the other, has been found intolerable by employers with obligations elsewhere and contracts whose time limits require a constant supply of labour. Neither are we altogether surprised that, despairing of official agreements, employers should seek to ignore the trade societies and to enter into personal agreements direct with the workmen, though this proceeding does appear to be somewhat retrograde and to have its dangers, which always attend departures from the official channels of negotiation. Should the demand put forward be met by official resistance on the part of the trade societies we presume a position will arise with which everyone is familiar; but should the demand made on each individual workman be refused by the individuals, without any official action by the societies, the position does not seem to be quite so clear. If the majority of men refuse to sign—as we understand they probably will—employers may find themselves with sufficient workmen to keep their jobs going, but not enough to get them finished in time. Although most contracts now running have, presumably, a little time in hand, a shortage of labour with no strike, local combination of workmen, or lockout—for all of which provision is usually made in a contract—creates a position which it would be interesting to discuss, but from which there seems nothing to be gained. We hope a settlement of the difficulty will render its discussion unnecessary.

THE MANCHESTER ROYAL EXCHANGE COMPETITION.

THIS important competition has just been decided by the selection of the design submitted by Messrs. Bradshaw, Gass, & Hope, while the second premium is awarded to Mr. Edwin T. Cooper, and the third to Messrs. Halliday & Paterson, of Manchester.

The problem is a difficult and complicated one, which, coupled with the fact that other large competitions were advertised at the same time, and that the Manchester problem involved an extension to existing buildings, accounts for an unusually small number of designs being submitted for a building the estimated cost of which is £175,000, £25,000 of which was allotted to work to be done in connection with the alteration of the buildings on the site.

The site of the Royal Exchange is bounded by Market-street, Cross-street, Exchange-street, and Bank-street; but an extension of the site is arranged by building over Bank-street and forming a new street to the south of the extended site. Plans were issued to competitors showing the Exchange buildings in all necessary detail. Competitors were at liberty to redesign the whole or any part of the elevations to Cross and Exchange streets, providing they kept within the limits of the cost laid down.

One of the most hampering of the restrictions insisted on was that a covered passage not less than 18 ft. wide should be provided on the ground level beneath the main floor of the Exchange approximately in the position now occupied by Bank-street, and this condition has proved a difficulty to many of the competitors in preparing schemes.

The greatest possible number of shops were to be provided on all frontages and also along both sides of the passage which is to be formed under the main floor of the Exchange.

As many offices as possible were to be provided on the upper floors of the new buildings, special attention being directed to the great value of north light for this purpose. The next most valuable light is east light. All offices were to be thoroughly well lighted, so as to fetch the greatest rentals. The upper floors of the present buildings were to be remodelled to provide the largest amount of office space possible of the character specified. The existing portico fronting Cross-street was to be removed and the front rebuilt.

An existing cartway facing Half Moon-street, giving an entrance for carts to the interior of the present building, was to be preserved and provided with new lifts to different parts of basement and sub-basement; and the area of the Exchange itself was to be extended by 2,250 super. ft., which space was to be as free from columns and supports as possible, *and connected with the present Exchange, so as to be used in connection therewith*, and on the same level.

We think it somewhat unfortunate that a fresh site could not have been obtained for the new Exchange and a building erected thereon. This would have enabled a suitable building to be erected, and the present Exchange could be used during its construction.

Naturally the whole scheme is cramped by the fact that the existing building has to be used during the period in which the additions are made, which renders it more than usually difficult to secure an architectural scheme. In addition, the old building, which must in large measure govern the problem, is one having little architectural merit. The problem thus becomes the old one of pouring new wine into old bottles.

The three selected designs appear to us, as far as we can judge, to merit their selection, but our survey of the designs submitted was made in circumstances of unusual difficulty, as they are crowded together in two small and badly-lighted rooms, and it becomes almost an impossibility to study them with any degree of care and attention.

If the selected site was a free one, and not covered with existing buildings, the problem would be a comparatively simple one, the object of which would have been to provide a large hall, free from supports or obstructions, surrounded by a ring of shops and offices. Seeing, however, that the present Exchange must be used without intermission during the progress of the work, it appears to us that those competitors who have simply added another Exchange Hall on the further side of the arcaded way, which at present forms the southern limit of the site, have been justified in their course of action, for in this way—and this way only—can the necessary work in connection with the addition be carried out with a minimum amount of interference with the present Exchange; and when the new building is completed it can be used while the necessary works in connection with the existing Exchange are carried out.

In other words, the very nature of the competition prevents the realisation of a perfect scheme.

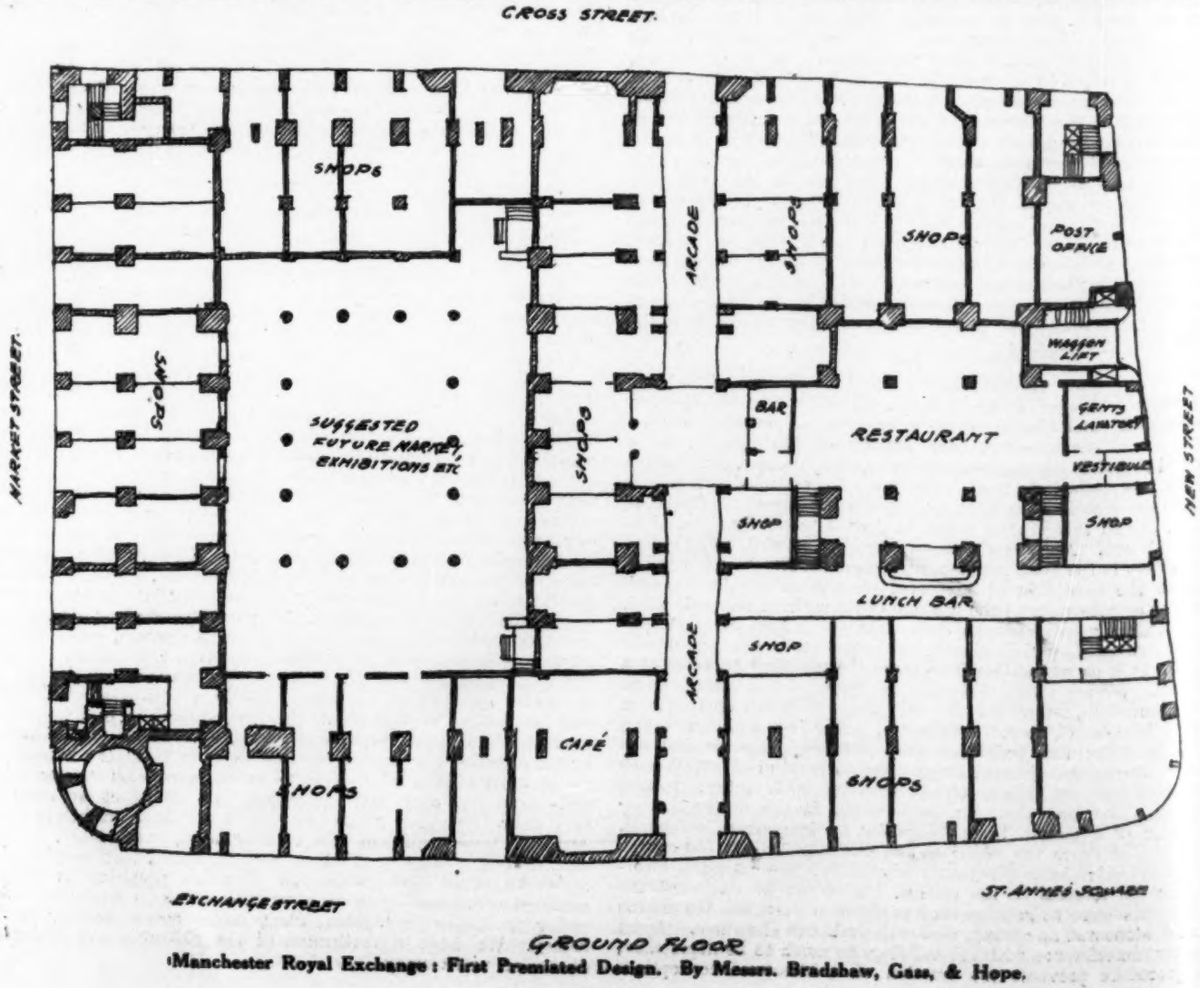
Taking the Exchange Hall in the winning design, Messrs. Bradshaw, Gass, & Hope have replaced the present arcade with a gigantic triple archway, with free standing columns—a treatment which, though having merits in itself, in our opinion is architecturally wrong, since it is entirely out of scale with the remainder of the existing Exchange Hall and with the new hall, which is a replica of the latter.

Since a range of offices is built over this arcade, no top light is available in this portion of the hall. The three large glazed domes over the Exchange hall are left in position, and are duplicated in the new Exchange Hall.

We have, therefore, the result of two halls, three sides of which are designed in the same manner, while a somewhat irrelevant and unmeaning arcade forms the fourth side of each hall.

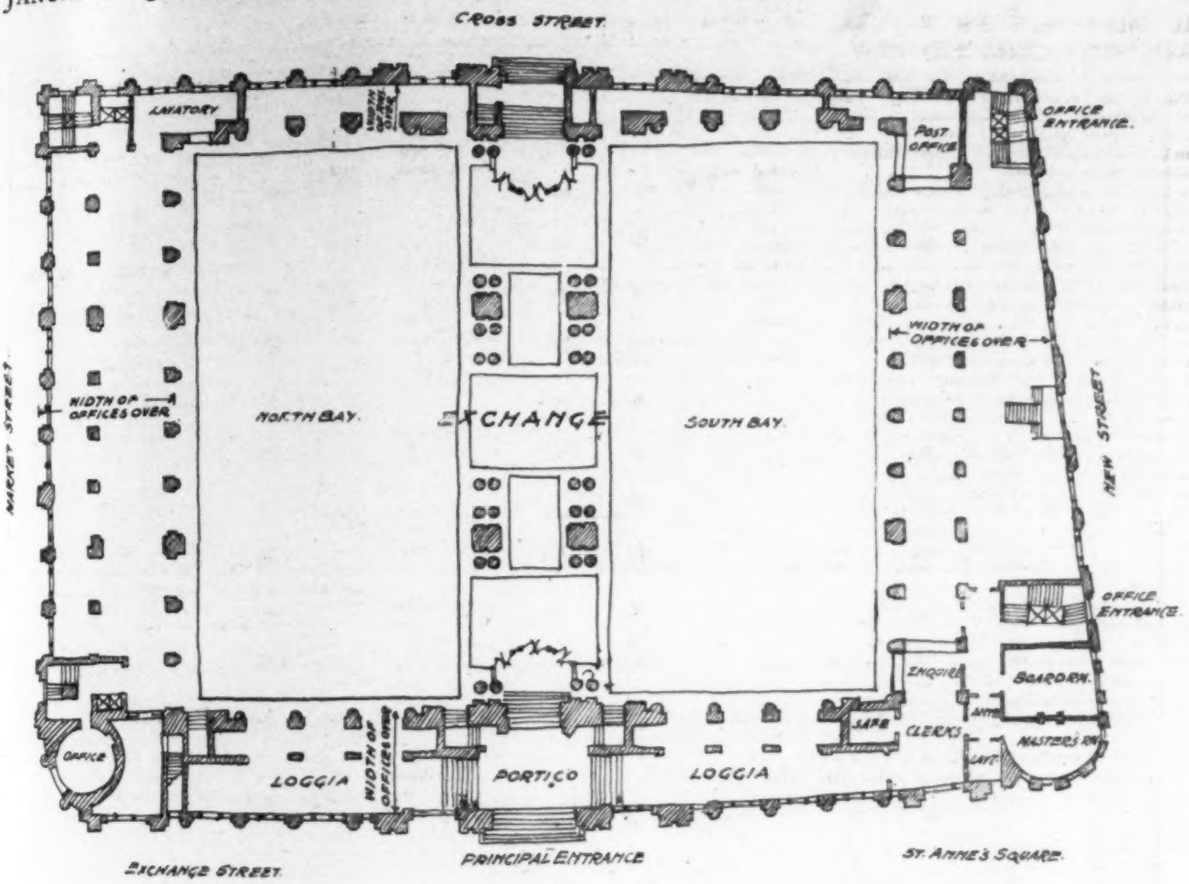
Very little clerestory light is available owing to the juxtaposition of the adjoining buildings, and the main lighting surfaces are the six domes before mentioned.

The arcade on ground floor is taken through from Cross to Exchange streets on an axial line some 25 ft. south of the main axis of the Exchange, and ranges of shops with basements are provided on all frontages. In the centre of the northern portion of the site a space of 90 ft. by 100 ft. is given up to the Futures Market, and in the smaller southern portion of the scheme a similar space, 80 ft. by 65 ft., is devoted to a Restaurant, which can be entered both from the New-street and from the Arcade. The "Hovel," or cartway, entrance is done away with, a wagon hoist being placed in a convenient position next New-street, but an alternative



GROUND FLOOR

Manchester Royal Exchange: First Premiated Design. By Messrs. Bradshaw, Gass, & Hope.



FIRST FLOOR PLAN

Manchester Royal Exchange: First Premiated Design. By Messrs. Bradshaw, Gass, & Hope.

plan shows how the "Hovel" cartway can be retained in its entirety.

The great defect of the scheme, as judged on the basis of the conditions and as compared with the design placed second, is the office accommodation given on the upper floors. The provision of as much office space facing north and east as possible was a point on which emphatic stress was laid in the conditions, yet the space available along the East or Cross street elevation is a narrow strip varying in width from 7 ft. to 12 ft. wide—a corridor, in fact.

The elevations are somewhat commonplace, but fairly well composed, and will no doubt be improved in their translation into working drawings.

We consider the scheme as a whole to be one of the best of those submitted, but we think that the design placed second should have been selected for reasons which we will state, although we cannot claim to have made an exhaustive study of the subject as an assessor must, and it is possible that had we done so our views would be modified.

The design placed second, which we are able to show in this issue, is, as compared with Messrs. Bradshaw, Gass, & Hope's design, a more architectural lay-out. We give the two main floors, the mezzanine floor, the detail elevations and sections.

A study of the ground floor plan will show the admirable simplicity and ingenuity with which the space has been planned out. The centre portions of the two blocks form a Futures Market and Restaurant, reached from entrances off Cross and Exchange streets. The author has abandoned the cartway passage, and provided hoists opposite the end of Half Moon-street to the basement, where a small rail and trolley is arranged. In this way every shop basement can take in and unpack goods, and both the basement and sub-basement can be conveniently and easily worked.

The existing Exchange Hall is left much as at present, excepting that the two outer domes are removed and ceiling lights introduced in their place, thus giving a better outline and light. The new portion of the Exchange is designed to harmonise and match the existing one; the space between, being kept at a lower level, enables both portions of the new Exchange to receive additional light by means of ample clerestories.

The chief merit of the scheme is, however, the satisfactory solution of the office problem. By the use of deep girders the upper portion of the Exchange is spanned from side to side, by which ample office accommodation is provided along the two main fronts. We have not been able to secure plans of the upper floors in time for publication, but a study of the sections given will convince the reader of the absolutely satisfactory manner in which the problem has been thought out and solved. It will be noticed that a second range of offices, top or north lighted, has been arranged on the other side of the corridor wherever possible.

The elevational treatment is excellent, and, considering the designer has been hampered by the necessity of following the general lines of the old work, the result is as satisfactory a one as is in the nature of things possible. The new centre feature of the Exchange front, which we illustrate, is a fine piece of architectural composition.

Mr. Cooper, we understand, was among those architects who were invited to compete.

The third premiated design, by Messrs. Halliday & Paterson, possesses many merits.

The planning of the Exchange, by which the new and old portions are joined by a high-domed centre connection, would be a pleasing architectural solution of the problem, while at the same time it gives an opportunity for the use of ample clerestory lights.

The entrances are well arranged, and the whole treatment of the building is refined and pleasing. We hope to illustrate this excellent design in a subsequent issue.

As we have said, the drawings are so crowded together and inadequately lighted that it is almost impossible to study them, and our notes on some of the remaining designs must be necessarily brief and general for that reason.

Mr Percy Worthington, who, we believe, was among those specially invited, sends, in No. 33, a design of distinctly high architectural merit. The Exchange is practically redesigned, and treated as one fine hall with four large centre piers, and the fronts have been redesigned in an admirably quiet and dignified manner. But the planning, especially that of the ground floor, leaves much to be desired.

Messrs. Briggs, Wolstenholme, & Thornely send, in No. 34, a fine set of drawings, in which the scheme shown is architecturally treated, but the retention of the "Hovel" spoils the lay-out.

Mr. Paul Waterhouse sends, in No. 19, a scheme illustrated by a strongly-rendered set of drawings in which Classic details conflict with an evident inclination to use a freer manner. The new portion of the Exchange is treated as an octagon, and axial planning has been abandoned.

One of the most original designs is that of Messrs. Henderson & Brown, of Bolton, shown by a fine set of drawings. The new and old portions of the Exchange are thrown together and roofed by a barrel roof from end to end, which dominates the whole scheme.

Messrs. Ivor James & Percy Thomas send, in No. 36, a scheme in which the passage arcade at the south side of Old Exchange is done away with, and a large space at the south end of site is given up to offices.

Mr. Vincent Harris (Messrs. Harris & Moodie?) send a design, No. 1, with very pleasing elevations, but the plans are hardly up to their usual level of excellence.

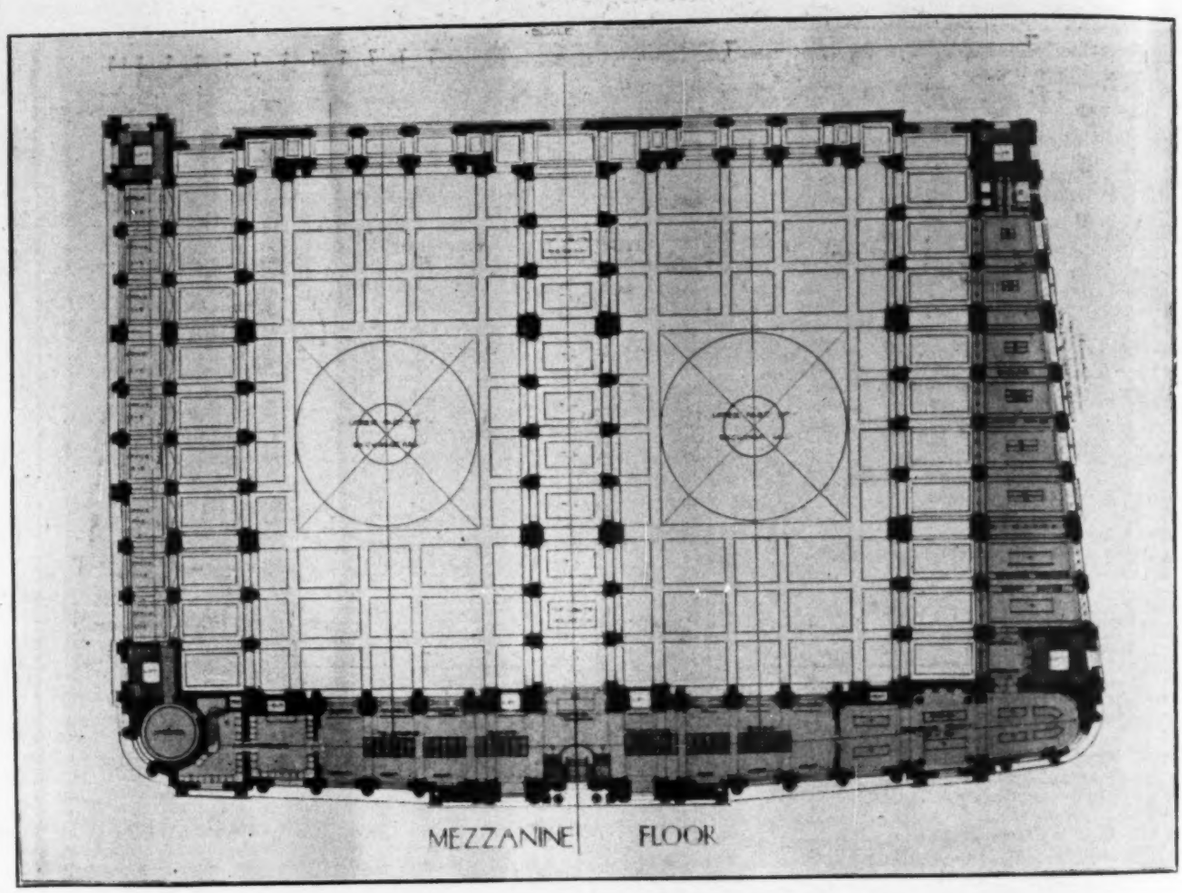
Mr. Jas. B. Fulton's scheme, No. 29, is also not of the usual standard we expect of him. In common with those of some other designers, his work indicates a distaste and want of enjoyment in the problem to be solved.

Mr. Charles Adshead, of Manchester, and Messrs. Cocker & Hill, of Altrincham, send in two excellent and pleasingly-designed schemes, which are quite among the best of those submitted. Mr. George H. Wenyon sends in a fine set of drawings; the design of the Cross-street elevation is especially pleasing.

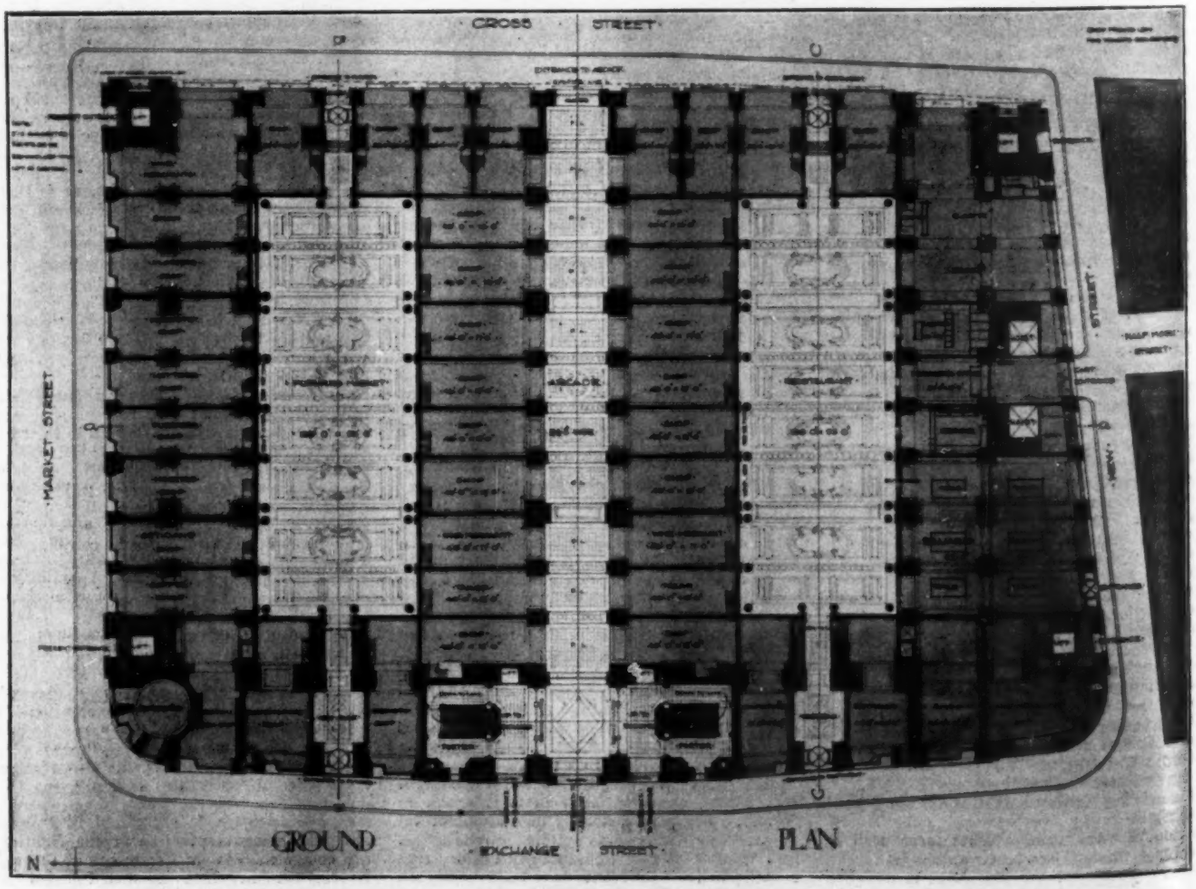
Mr. Stanley Hamp's scheme is a good one, but he has hampered himself by the retention of the "Hovel." The elevations are French in type.

In Dr. Burnet's design the entrance is placed in the new portion of the Exchange—an irregular treatment, in which this design seems to be unique. The elevations and detail were, as far as we could see in the gloom, of a pleasing and interesting type. One of the oddities of the competition is the design of Mr. Cleave, of Nottingham, in which much of the new office accommodation is obtained by a circular ring of offices round the base of a dome; and further interest is given by circular sanitary groups.

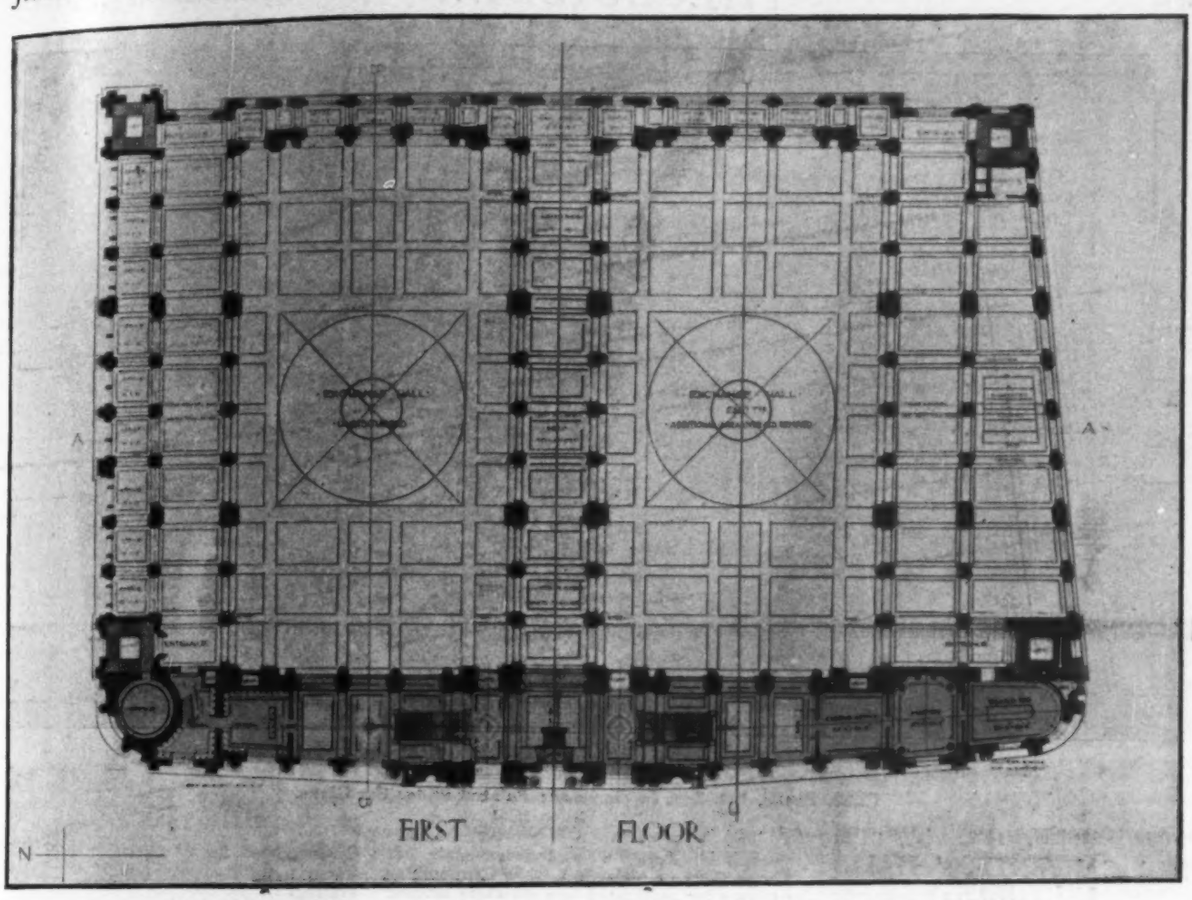
C



Manchester Royal Exchange: Second Premiated Design.



Manchester Royal Exchange: Second Premiated Design. By Mr. Edwin T. Cooper, F.R.I.B.A.



Manchester Royal Exchange: Second Premiated Design. By Mr. Edwin T. Cooper, F.R.I.B.A.

In conclusion, we would emphasise the fact that we think the authorities have been unfortunate in being unable or unwilling to obtain a new site on which a building worthy of the subject could have been built, and we are afraid in this, as in many cases, conditions laid down have not been sufficiently strictly insisted on in the award given.

ARCHITECTURAL SOCIETIES.

New Society at Preston.

The Preston Society of Architects, Surveyors, and Civil Engineers is the official title given to the new body of professional men which has just been formed in Preston. The Society has started with seventeen members, and the inaugural dinner was presided over by Mr. H. Heaton, who in the course of his remarks stated that the main object of the Society was to protect professional men in the district from unfair competition.

Manchester Society of Architects.

At a meeting of the students on the 9th inst. a paper was read by Mr. H. W. Price on "A Pioneer of English Traditional Architecture." The lecturer referred to Inigo Jones as perhaps being the pioneer, then dealt in full with the life and works of Sir C. Wren. Sir Christopher Wren, in a letter to a friend, said:—"Building ought certainly to have the attribute of eternal, and therefore the only thing incapable of new fashions." Mr. Price remarked that we should therefore avoid the modern fashions of Gothic, New Art, and Neo-Grec, and advocated the carrying on of the good work of these two great men (and their immediate successors), the principals of which obtained, in the one case directly and in the other indirectly (through France), from the works of the great Italian masters and were admirably adapted to English tradition. As the works of these great men reached such a degree of perfection there is little left for us to do but to arrange and compare.

Devon and Exeter Architectural Society: Registration.

The Society of Architects' draft Bill for the Statutory Registration of Architects was considered by the Council of the Devon and Exeter Architectural Society on January 16, when the following resolution was passed:—

"That this Society, having always approved of the principle of Registration, now approve the Bill as drafted by the Society of Architects."

The Royal Institute of the Architects of Ireland.

An ordinary meeting of the Council of this body was held at the Institute Rooms, No. 31, South Frederick-street, Dublin, recently. The President, Mr. R. Caulfeild Orpen, R.H.A., occupied the chair. There were also present Messrs. A. G. C. Millar, C. H. Ashworth, C. A. Owen, W. Kaye-Parry, W. A. Scott, J. H. Webb, G. L. O'Connor, L. O'Callaghan, C. J. MacCarthy, J. A. Geoghegan, F. Hayes, A. E. Murray, and F. G. Hicks, Hon. Secretary. Mr. Kaye-Parry welcomed the new President to the chair, and the President's badge of office was handed to Mr. Orpen by Mr. Murray, ex-President, who presented it to the Institute in 1910. An accumulation of business was got through, and new sub-committees were appointed for the ensuing session.

Glasgow Technical College Architectural Craftsmen's Society: Glasgow Cathedral.

At a meeting held on the 16th inst., Mr. T. G. Gilmour, A.R.I.B.A., in the chair, Mr. Geo. Laird delivered a lecture entitled "Glasgow Cathedral." The lecturer first dealt with the history of the Cathedral, and then described in detail the work of taking off the old and putting on the new roof. He said the couples were made of oak, and the first task to be faced was the procuring of British oak for the new roof. Almost all the timber came from England. In the carpenter work and in the decorated bosses some of the oak which had been in the roof since it was erected in the thirteenth century has been reused. This is a most interesting fact, as it points to a durability in timber which many will hardly believe, and if it had not been for the troublous times of the sixteenth century, when the Reformation took place, and if the roof had been kept intact and watertight, there is good ground for believing that the old roof might be standing to-day. The lecture was illustrated by lantern slides showing the various stages of the work, and there was on view a number of specimens of old timber, hand-made nails, and also wood pegs which were used instead of nails for fixing the roof sarking.

BEAUCHAMP CHAPEL, ST. MARY'S, WARWICK.

The Bishop of the Diocese and the Vicar of St. Mary's appeal for subscriptions to a sum of £2,000 wherewith to arrest further decay of the fabric caused by the friable quality of the stone. The tower and late fourteenth-century nave and transepts of the formerly collegiate Church of St. Mary were rebuilt, after the big fire, in 1704, by Sir W. Wilson, of Leicester, architect and builder. He, it is believed, had the aid of Wren, whose sketches, preserved at All Souls, Oxford, show the then new work and the old church, with its Perpendicular window similar to those in the chapel, low early English western tower, and south porch with library above. From the south transept one enters the St. Mary, or Beauchamp, Chapel, erected in 1443-75, by the executors of Richard Beauchamp, Earl of Warwick, at a cost of £2,481 4s. 7½d. It contains his finely-elaborated altar-tomb, with brass-gilt effigy and curious "hearse," or canopy, and the monuments also of Ambroise Dudley, Earl of Warwick, K.G.; of Robert Dudley, Earl of Leycester, and Lettice, his wife, and of their son, Robert Dudley, Baron of Denbigh. On January 31, 1891, we illustrated Mr. Harold Brakspear's set of measured drawings of the chapel ("honourable mention" for the Institute Silver Medal, 1891). The restoration of St. Mary's Church was begun, in 1884, by Butterfield, who rebuilt Wilson's western tower, and was continued in 1896, at a total expenditure of £20,000, by J. A. Chatwin, F.R.I.B.A., who removed the side and transept galleries of 1767-97. Wren's sketches of the proposed works give no indication of those galleries. The bas-relief of the Salutation, over the altar in the chapel, is by Collins.

R.I.B.A. PROBLEMS IN DESIGN.

The designs submitted under Subject XII. will be on view in the rooms of the R.I.B.A. from January 22 to 24 inclusive, between the hours of 10 a.m. and 8 p.m. (Saturday, 6 p.m.).

D

Blue and Green. Birds and Snakes. Green and Red.

China Bowls, 1 ft. 2 in. in diameter: Painted under the Glaze.

THE CARPENTERS' HALL LECTURES:

"THE CRAFT OF CHINA PAINTING."*

THE production of beautiful pottery seems to me to be quite one of the most important things to be done in the world, and yet at the present time not one piece in ten thousand which is produced is worth looking at. I hardly expect my statement of the importance of pottery to receive acceptance. Many people would say that bookbinding, and certainly jewellery, were more important crafts. We all know that for a perfect body the ear is as important as the eye, and in a perfect State no craft can be dispensed with. If, however, you have anything to do with the study of the antiquity of man you will find that pottery plays a most important part. Now, why is this the case? First, because of its durability; and, secondly, because its form tells you to a great extent what it was required for, and its decoration tells you much of the state of the civilisation of its makers, as well as the period in history when it was made and probably where it was made. I think the quality of durability is quite one of its most fascinating charms. When once a piece of clay has been thoroughly burnt it becomes far more durable than stone. There are many gases which quickly disintegrate stone but which will not touch pottery. Indeed, it seems almost impossible to find a stone which will resist the London atmosphere, and yet our brick buildings, although they are black and grimy, are not affected so far as the bricks are concerned, although, of course, the mortar gets eaten away. If the pottery is glazed its surface is still almost equally durable, for the glaze on pottery is, with the exception of salt-glaze, nothing but ordinary glass, and anyone who has been to a museum will know that examples of glass vessels and glass beads are in existence which were made in Roman and Egyptian times, although the glass is often badly decayed. I have just spoken of salt-glaze, which is different from other glaze, and will say more about this later on.

I think I am right in saying that the quality of durability is one most highly prized by mankind. What a common test it is of a man, and what a common question, "Will his work live?" And yet the potter's work can only be destroyed with difficulty, and it will last equally whether it be good or bad. Of course, it may be broken, but then it must be broken very small if it cannot be put together again. It always gives me pleasure if, when I am making concrete for building, I can get some modern pottery to break up, because it makes stronger and better concrete than broken stone, and it is so satisfactory to find a fit use for modern pottery. Shapes in pottery are as important as its decoration. Many people are puzzled by seeing pots with no feet to them; that is, pots which end like a cocoanut at the bottom, only rather more pointed. They wonder whether they had stands provided for them. The real explanation is that they were made by a people who lived in a desert. Pots with feet would easily tumble over if placed on the sand, but pots ending in a blunt point had only to be pressed into sand to make them stand firm. Numbers of the Greek pots are obviously not made for use, and this of itself tells us much of the condition of the people, for if they made pots for ornamentation only obviously they were more or less a leisured people. For many years I was greatly puzzled by finding plates made with a moon-shaped piece cut out of them until I found out that they were made for shaving dishes and that the moon-shaped piece was cut out so that the plate might fit round a man's neck under his chin. One reason for form in pottery being as important as its decoration is that time may destroy the decoration, but the form still remains to tell its tale. However, it cannot be denied that decoration often tells us much more than form could possibly tell us. The pictures on the Greek vases in the British Museum, for example, are full of information. The drawings on these vases are wonderfully done, and are generally considered to be one of the highest forms of pottery. I do not mind confessing that, although some of the shapes are wonderfully refined, I think them, taken all together, very ugly. If we turn from these to some of the best Chinese work I consider the Greek work is not in the running. When I have finished reading this paper I intend to show you lantern slides to more fully explain what I have been saying and am going to say. Pray do not be impatient, for I am going to tell you about the practical work of actual painting; but I want to get your minds imbued with its importance first. I want, if I can, to give you the same enthusiasm which I have myself for pottery. Life is so much more interesting if every object you see sets you thinking. I have the greatest difficulty in getting along the streets of London because of the second-hand shops exhibiting china and pottery, and cannot pass them without stopping, and when once one stops there is no telling how long one will stay. My old temptation used to be to buy. But then one could get a fine Chinese bowl for fifteen or twenty shillings, whereas now the same bowls will be thirty shillings at the least, or perhaps five pounds. Now, these China bowls, besides being wonderful pieces of colour, have often delightful pictures upon them. You will see children playing, people feeding, or in their gardens, or sitting in state. Then, again, there is their dress and furniture and houses—all worthy of close attention. Although I have named Chinese work, I am well aware of the great beauty of the Japanese china, and it is sometimes difficult to tell whether a piece of china has come from China or Japan. I am not going to speak about Spanish work, because its chief glory is its lustre. Lustres are produced by painting over the glaze, and when it is in the oven wood smoke is produced which gives the iridescent effect. Everyone is familiar with Mr. De Morgan's pottery. Much of the most beautiful made by him was done on the lines of Spanish work, and his lustres were most successful. It is a sad loss to England that he gave up his factory, and, to my mind, his charming novels are a poor substitute. He used a fine hard clay, sometimes red and sometimes white, which was covered with a white opaque ground made from tin. On this ground the pattern was painted in underglaze colours and then glazed and fired. He once kindly gave me two plates to paint upon and the colours for them. I found that he had certainly made china painting easy, for the tin ground was delightful to work upon, and the colours had just the right amount of gum mixed with them to make them work well.

I hope to show you a slide of one of the plates. Dutch earthenware painting is perhaps the most appropriate for the beginner to study. The old Dutch tiles which we all love so much are a marvel of free brush handling. Of course, the same pictures are repeated over and over again, and I expect that the great freedom of handling is partly due to this. It is easy to see that if the same subject was drawn hundreds of times the draughtsman would be able to do it with great certainty. The extraordinary power of drawing possessed by the Japanese is due to much the same cause, for they do not copy, as we do, but by observing and drawing the same object until they know it by heart they can draw it with certainty. My experience is that this is the only way in which really successful china painting can be done. Suppose you have a running border to paint—and I often have over 3 ft. of a border to do—you want to know your pattern so well that you can draw it in much the same way as you write, letting the swing of the brush be felt at each curve or stroke.

* The second of a course of ten Carpenters' Hall Lectures on "Arts Connected with Building," delivered on the 14th inst. in the Hall of the Company, London-wall, by Mr. Thackeray Turner, F.S.A.

The Work of China Painting.

And now we will come to the actual work of china painting. You may either paint on earthenware or on china, and you may paint either after the one or the other has been glazed, in which case it is called "over-glaze" painting. Or you may paint before either of them has been glazed, in which case it is called "under-glaze" painting. If you paint over the glaze the colours used are quite differently prepared. They are mixed with a flux which will melt at a lower temperature than the glaze on which you paint, and when the painting is finished it is put into an oven and fired on. This you can do yourself, if you like, for sufficient heat can be obtained either by gas or electricity. Some colours will stand more heat than others, and the best work is done by painting the high temperature colours on first and the low ones at a second firing. A piece can have practically as many firings as you like, and the work is very similar to paintings on glass. If we look carefully at a Chinese or Japanese bowl it will be seen that the colours are painted over the glaze, but that the blue is put on under the glaze. They had a light chalky blue, which they used over the glaze sometimes, but not often; but they always put that rich blue (which is the same as that used for what we now call old blue china) on first.

The success with which they did their over-glaze work is quite wonderful, and I have never seen any modern over-glaze work to equal it. I have lately seen some over-glazed work by a well-known English firm which you could strip off with your finger-nail.

It seems to me that over-glaze painting is not worth doing. It always looks like paint on the surface, and we do not seem to be able to get anywhere near the quality of the Chinese and Japanese work, and even some of their work looks just like paint on the glaze instead of its melting into the glaze.

Although I have often seen over-glaze work being done, I have never done it myself, for under-glaze work has always seemed so much more worth doing.

The colours have all the charm of a wet pebble as compared with a dry one. We all know what beautiful pebbles can be picked up on the seashore and how when one gets them home and sees them dry they do not seem worth having. This example of a wet and dry pebble gives a good idea of the difference between the appearance of under-glaze and over-glaze painting. The colours of under-glaze work are like the colours of pebbles seen under water. I have given up painting on earthenware, and only paint on china, because there is not such a great difference in price between the two wares, and all the trouble of the absorbency of earthenware is done away with, for china is quite unabsorbent. Of course, the only way in which earthenware can be painted on is by stopping it out. When I first began china painting I used oil of turpentine as a medium. It is made by evaporating turpentine, and for a sticky material I think it has not equal. You mix a little of it with the colour and add turpentine until you have diluted the colour to the strength you require. If you are going to use up the colour you have mixed the same day it does very well, but the turpentine keeps on evaporating, and you have to thin it down by adding more turpentine, and the colour eventually becomes unworkable. In china factories they seem always to use it, but I have long ago given it up in favour of gum. Mr. De Morgan, I found, always used gum. You can buy it at any chemist's in the form of a powder. I have a pipette, which is a glass flask drawn out to a point which turns slightly over on one side, and it has a glass stopper on one side so as to admit of gum-powder and water being put in. The great difficulty is that the gum goes mouldy very quickly, but by using a pipette and only adding boiling water this does not take place, for owing to the fine hole through which the gum comes out being turned on one side the germs of mildew cannot get in. It was some years before I found this out, and my gum-water always went quickly mouldy.

When using the gum all you have to do is to tip the pipette on one side until the neck of the outlet has as much gum as you require in it, and then hold the pipette in your hand, and the warmth of your hand expands the air inside and drives the gum-water out. There is only one other point to remember, and that is when filling the pipette to put a very little grease on the glass stopper. If you do not, when you come to refill it you will probably find that the gum has stuck the stopper so that you cannot get it out. These bottles are called in the trade Schuster's stoppered dropping pipettes, and they can be obtained of Messrs. John J. Griffin & Sons, of Kingsway, W.C.

We will now imagine that we have a china bowl before us which we intend to paint. I do not mind confessing that such a bowl sometimes stands before me two or three days before I have an idea of how to treat it. We cannot wait now, and so we will suppose that we have decided upon our design and that we think white will be too strong for the ground, and that it must be creamed. A nest of ordinary painting saucers is beside us and a square of ground glass, say, 6 in. or 8 in. square, and a muller—that is, a lump of glass something like a large glass stopper with a flat bottom to it. Take some yellow, about as much as a sixpence will carry, and put it on the ground glass slab. Then put to it some gum and some water and grind it until it is absolutely smooth. No signs of grit must be left. Then take a palette-knife and scrape it all up and put it into the side of the saucer which holds most and add more gum and water. Then take a large brush—I prefer a hog's brush to a camel's-hair brush, as the hairs are almost sure to come out of the latter and leave a yellow line where the paint collects against the hair. Turn the bowl on one side and put the wash on, letting it run down across the bowl, taking care not to put more colour in the brush than it can carry across at each sweep. I mean that the colours must not run down in lines across the bowl beyond the line which the brush is making. The colour requires putting on fairly thin; if with the first sweep of the brush it is seen to be too strong more water must at once be added to the colour in the saucer. The bowl must be put on its side until the colour has dried, and the colour as it collects at the bottom edge must be wiped up with a dry brush. The outside of the bowl is more easy to do than the inside but for some reason which I cannot explain you always require the colour to be mixed a little stronger. It may be that on the inside the colour gets reflected from the opposite side of the bowl, but I don't think this is so, for it always seems that the colour does not bite into the outside as much as it does on the inside.

Now that the ground of the bowl is tinted we can sketch our design. One of the delightful things about china painting is that you need not be afraid of having your fling. Suppose you start with a slate pencil which marks well on the bisque, as china is called before it is glazed. If you get into a muddle with your design it can be cleared up with ordinary pencil; or you can abandon your scheme and start another. And if you get into a muddle with that you can go on with common ink, or Chinese ink, or coloured chalks. Whatever you put on will all burn out in the firing. It must also be remembered that, although you have lost the pure white of the china by putting on a ground, you can wash any portion of it off if you wish to obtain pure white for your design. I sold a bowl to the Manchester Corporation a few years ago which was covered on the inside with dozens of white star-shaped flowers. These, if I remember rightly, were all washed out of the ground. Washing out is, of course, rather a slow process, but it repays the labour in most cases, because it produces a pleasant soft effect. For anyone beginning china painting I should advise that one colour only should be used, although the ground may be tinted with another colour.

A good combination is a very thin coat of yellow for the ground and a pattern in dark green, or, to be exact, pure oxide of chromium—a colour that washes well and fires well. I know nothing about china painting beyond what I have found out for myself, and I have never been able to find any book on the subject except on over-glaze painting; and, what is most troublesome, I cannot find any book on the chemistry of the colours. I have bought some pure oxides, and from them have found out that what is sold as blue is oxide of cobalt, that dark green is oxide of chromium, and what is sold as violet is oxide of manganese. If you write to a manufacturer of china colours he will probably be willing to send you a list-slab showing you all the colours he makes, and from these you can choose what you want. Some colours are, speaking from the painter's point of view, of a chalky nature, whilst others are more of the nature of a stain.

Among the strong and dominating colours violet may be mentioned; dark green is not bad, but pea-green is very chalky, so are the reds and yellows, but yellows are not as bad as the reds. If you break a piece of china which has been painted under glaze you will see that the blue is taken up into the glaze for its full thickness, whereas other colours are only covered by the glaze. Black can be used as a staining colour, which means that, like green, blue, and violet, it can be used of different strengths to obtain different depths of colour. Most of the other colours have to be put on fairly thick. I have already described how I add gum to the colour, and the only reason for adding gum is to prevent the colour from rubbing off before the glaze is put on, so that only a very little is needed—just enough to make it stick. If too much is added the colour will crack, turn up, and peel off.

Adding the right amount of water is equally important. If you take any bottle—an ordinary medicine bottle does very well—and make a hole through the cork, through which the quill of a hen's wing feather is pushed and cut off flush on the under side and allowed to project about ¼ in. above the cork, it will be found that the water in the bottle will come out drop by drop when tilted. This makes it fairly easy to add the right amount of water. If, however, the colour has been too much thinned down, to save thickening it by grinding up more colour the water can be evaporated by holding a match or spirit-lamp under the saucer. I cannot tell why, but I have often found when the colour has been working badly that this process has made it work well. I always use rain-water, but ordinary water which has been boiled does as well. Ox-gall is indispensable, for if the china gets at all greasy, either the colour will not go on or else it will slip off before the glaze covers it. Grease on your china is a great enemy. Always wash your hands before touching it, and don't let your friends touch it.

Brushes in all forms of painting are apt to be a difficulty. I find that the best brushes to be those sold by Messrs. Winsor & Newton, and called rigging brushes. They are made in tin holders, and the hair is very long; at the same time they are nice and stiff.

There is one thing not named so far, and that is a turntable. It is not necessary, but at the same time it is a great convenience for large pieces, which, by its use, can be made to face where the painting is being done. The trade use it for putting tints on the china. The cup or bowl is centred on it, and then the brush, fully charged with colour, is held against the china where the line is required and the piece slowly revolved, so that a true line is left. It gives a mechanical effect, and contrasts rather strongly with hand work. Personally, I prefer drawing the lines on by hand. If I did not I should still have to do so with the large bowls I paint, because, owing to their size—that is, 1 ft. 2 in. across—they are never true. They always twist a little in the first firing. Perhaps it is not generally known that china, as it is now made, cannot be thrown on a wheel like clay, because it is a liquid and has to be cast in a mould. The shape required is first made in clay, and then a cast of it is taken, and into this mould the china clay is poured. I believe I am right in saying that two-thirds of china is calcined bone. It is rather a wonderful sight to see at a china factory the stack, many yards high, of white bones piled up.

Glazes.

I said that I would speak about glazes. The hardest is salt-glaze. I expect everyone here knows Martin Brothers' ware, and will have noticed that the colours are always very subdued. The reason for this is that all their ware is salt-glazed. The glaze is obtained by throwing common salt into the furnace in which the earthenware has been placed. The heat has to be very great, so that the salt is decomposed and the fumes deposit on the earthenware and form a glaze. Only a few colours will stand this great heat, and it is quite a chance how the piece will come out.

The only other glazes I know of are lead-glaze and soda glaze. Glaze is nothing but glass, and, as you know from visiting Powell's glassworks, they make both sorts. I believe I am right in saying that one-third of lead-glass—or flint-glass, as they are pleased to call it in the trade—is red-lead. The first thing to remember in arranging a scheme of colour is that the best effects in under-glaze painting are produced by using the staining colours in different strengths. Fortunately, it is the brightest colours which have to be loaded on,

and therefore there is no need to have them in large masses. It will be found that outlining is very desirable. This can be done with any colour, but black is the usual one. I always mix brown with black, for pure black seldom looks well. Green outlined with green, or blue with blue is quite satisfactory. A diaper over the ground left by the pattern gives an excellent effect. Generally speaking, the designs which have the biggest masses of colour look best, but a plain large wash looks poor unless it is worked upon in some way. Again, it generally is wise to change your colour by using a different blue or green to work upon a blue or green. The things that can be done seem endless, and one is always finding out fresh combinations. For example, green worked on with blue sometimes comes out very prettily, and reds worked on a heavy ground of oxide of manganese look well if the pattern has a backbone of black.

The great difficulty which has to be contended with is that modern china and modern glaze are so uninteresting in texture that we cannot allow large expanses of ground to show. The grounds of many of De Morgan's pieces are so pleasant that I often wish he had kept his pattern on such pieces more open. If you look at that magnificent collection of Persian china and earthenware which is now placed in the South Kensington Museum you will see some most charming pieces with hardly any decoration upon them, their chief beauty being derived from excellence of shape, texture, and tint. Mr. De Morgan did not attempt to meet the requirements of daily use, and we shall never get a high standard of beauty for pottery and china unless we begin at the beginning and work upwards. If anyone present wishes to try their hand at under-glaze china painting they will find the greatest difficulty in getting a simple plate or cup and saucer of reasonably good form to paint upon. I have been over many showrooms and china factories, and have always found not beauty of form, but real ugliness, and generally the more costly the piece the uglier it is; and even this is not the most hopeless part of the statement which one must make, for in every case it will be found that the producers are perfectly satisfied with and proud of their work. There have been a good many attempts made out of the trade to do better things, but not, I think, on the right lines. What we want is someone who will start a factory by beginning with, say, tea-sets and breakfast-sets. It would cost no more to make these of really good shapes with nice thin edges. It is horrid drinking out of thick-edged china. The next thing to do would be to make some really simple designs, such as could be drawn quickly by any art student who had learnt to use a brush. Then if a good glaze could be settled upon, beautiful work should result, which it ought to be possible to sell at quite a reasonable price. I feel sure there would be a large demand for such work. In designing patterns for china it must be remembered that a single stroke of the brush will give either a line or different forms of lance-shaped marks, and therefore to obtain freedom and quickness of work the designs should be composed of these forms. There are few thoughts more irritating than that it costs no more to make things beautiful than to make them ugly, and one evidence of this is the fact that the cheapest pottery made at the present time is the least ugly.

A Few Words of Advice.

There are a few words which may be said to any who are thinking of trying their hands at china painting. Let them begin with simple things. A plate is perhaps best, and oxide of chromium the best colour to be used, as it is a very fine green, and it needs no modification. If the colour is bought from a colour manufactory apple-green should be ordered. As it may be difficult to find out where to go for this I will give the address of a firm which has treated me kindly—Messrs. Emery & Sons, Colour Works, Cobridge, Staffordshire. The best way to get your biscuit ware is to go to one of the London showrooms of any of the big firms and ask them to order a dozen of any shaped piece you fancy and let you have them unglazed. You must not expect them to let you have less than a dozen. I have already said that you can get rigging brushes at Messrs. Winsor & Newton, Rathbone-place, and they are the best. Try to get the idea of your design in your head and draw it freely with the brush, remembering that freedom of brush handling is of more importance than accuracy.

Above all, do not be wishing you had someone to show you how to do it, but make up your mind to find out for yourself, for what you find out for yourself is worth twice as much as what is shown you. There are generally many ways of doing the same thing, and if you go and see different masters of any craft you will find that each has his own way, and this very difference of methods gives an individuality to the work, and it is this very quality which helps to make it an art. To my mind it is *teaching* which is killing art. No help should be given to any student until the student has failed to solve the problem for himself. After he has found out his own way there is no harm in his seeing how others do the same thing, for then he becomes a critic, and he may learn something of use to himself. Indeed, the best education ever given was the old apprenticeship system, where the student saw good work being done, and the best thing students can do now is to go and look at good work. They have no excuse for not doing so, for any student can find the work he is interested in well represented by the finest work in our museums. South Kensington Museum is exceptionally rich in china and earthenware, and some very fine examples will also be found in the Geological Museum—a place where one would hardly expect to find it; and, of course, it will be found at the British Museum. There seems to be no hope of any good work being turned out by the trade at present, for what they are aiming at is hopelessly wrong. For one thing, they seem to think that sharpness of definition is the first thing to be aimed at, and any piece where the colour has run at all is at once condemned as faulty, whereas if we look at the finest museum pieces we often find that the colour has run considerably.

How much I wish that the Worshipful Company of Carpenters would see their way to give employment to the many students whom they train and who can draw beautifully by getting some firm to make good breakfast and tea sets of plates and cups and saucers, which the students could decorate and have glazed! My belief is that it would be a paying concern.

THE QUADRANT, REGENT-STREET.

THE accompanying illustrations are further studies by Messrs. Richardson & Gill for the rebuilding of the Quadrant, Regent-street. The main idea, shown by sketch No. 1, is to treat Messrs. Swan & Edgar's premises and the County Fire Office as the legitimate terminations to the Quadrant, the Piccadilly Hotel being dealt with as a separate entity, and the smooth wall surface of the curved portion of the street retained as affording the most suitable foil to the shop front below. Bearing in mind the commercial side of the question in dealing with Messrs. Swan & Edgar's premises, a large glazed central area is schemed to form the roof of a vast open bazaar. The character of this is expressed in the façade to Piccadilly-circus. This type of design enables the luncheon-rooms to be placed on the roof in the form of an Italian loggia, and at the same time admit of the quasi-domestic type of window—the most suitable for a curved surface—to be retained. Sketch No. 2 is interesting as a study of modern shop-front architecture; the lofty mezzanine is framed to form a continuous girder.

THE ARCHITECTURAL ASSOCIATION:

FIRST SPRING VISIT.

ON Saturday, January 17, a well-attended visit was paid to the new Middlesex Guildhall and to the Institution of Civil Engineers, both of which buildings had been visited in an earlier stage of construction nearly a year ago, and are now virtually completed.

The joint visit engenders curious mental comparisons and a feeling of bewilderment as to the bases of architectural design. We have been repeatedly told lately that in the Houses of Parliament we may see a Classic plan clothed in correct mediæval detail. Now it can be added that in this Westminster Guildhall we have also a Classic plan clothed in "free" mediæval detail, while in the Institution of Civil Engineers we have a plan considerably less balanced, wrapped rather than clothed in "free Classic" detail. We rub our eyes and wonder where we are going.

Another aspect which disquiets us: Few recent buildings have attracted so much or so favourable notice in the public Press as this new Guildhall at Westminster. Other noteworthy buildings in close proximity are generally viewed with apathy or active dislike, but this latest sacrifice of logical design to mediæval surroundings the public feels that it understands and appreciates. Architects will consider that the public probably does neither, in the exact sense of the words. But are they or the public in the right of it?

Leaving the general for the particular, it can safely be said that the plan of the Guildhall, which was described in the Report of the previous visit, is an admirable one, and the exterior treatment has at once sufficient reticence, coherence, and freshness to be almost wholly praiseworthy. The sculptured detail throughout is beautifully executed by Mr. Fehr. In the interior the fertility of design showered upon the detail and embellishment of the chief public rooms rather outruns discretion. There is also an eclecticism about the detail of the lesser rooms—Neo-Chippendale and ultra-modern, Gothic panelling and Adam fireplaces in close juxtaposition—which rather startles one. Mediæval architecture is so essentially a structural style that it is rather shocking also to see random ashlar imitated in "stuc" so closely intermingled with real stonework (often enclosing steel stanchions) as to keep one's senses on the strain to distinguish true from false. The ceiling of the Large Court, in "stuc" on a fan-vaulting motive, is much less satisfactory than the genuine beam-and-plaster treatment of the Small Court. The plaster ceilings throughout the building are beautifully executed, though not always in complete sympathy with their surroundings; not only the modelling, but the surface treatment of the plain spaces is very sensitive. A vast amount of inventiveness has been lavished on such metal fittings as door furniture and electric-lighting pendants; the latter, in fact, strike one as rather overdone—they miss the suggestive possibilities of the light they convey, so that weight is their chief characteristic. The general completion of the Small Court, with its fittings and galleries executed by Messrs. Martyn, of Cheltenham, and the leaded glazing in its windows, give a hopeful idea of the future finish of the Large Court and Council Chamber, which are at present incomplete.

The architects, Messrs. Gibson, Skipwith, & Gordon, certainly have not stinted their services in the design of this building, but most of their brethren will recall some other of Mr. Gibson's buildings, in what one likes to think is his preferred manner, with more pleasure.

The plan of the Institution of Civil Engineers was described on the occasion of the last visit, when also the exterior of the building was sufficiently advanced to be critically considered. On the present occasion the interior was inspected. The building is admirably spacious and well lighted, and appears highly convenient. It, however, requires more than Renaissance detail to make a Classic design, and in those characteristics which constitute plan in the sense in which a French or American architect would understand it it is rather lacking. The ground floor contains the Official Department, also two large reading-rooms, Council-room, and Committee-room. The reading-room walls are broadly panelled to the height of doorheads in French walnut. The Council-room walls are finished from floor to ceiling with large oak panels and pilasters treated to give an antique appearance to the oak surface. The Committee-room contains the oak dado and chimney-piece removed from the old Council-room. Both these rooms would be improved by a more marked proportion; they are neither markedly square or oblong. On the first floor the Great Library, 158 ft. long by 28 ft. 6 in. wide, contains all the fittings, bookcases, and chimney-pieces removed from the library of the old building. The ceiling, 23 ft. high, produces a curious effect by its disconnection from the walls, being borne apparently on the relatively slender posts of the gallery fronts. Over the opposite side of the main staircase is the Lecture Theatre, 60 ft. by 40 ft., with removable floor staging to allow of the room forming part of the reception suite. The ceiling of this room had an even more curious effect owing to the lighting concealed behind the cornice, which brightly illuminates the continuous deep cove, leaving the flat ceiling apparently floating and ready to descend like a lid at any moment.

The Quadrant from Piccadilly Circus: Suggested Scheme for Rebuilding.

By Messrs. Richardson & Gill.

The semi-domestic type of window is retained for the curved portion of the street, the larger premises being top lit from a central area, similar to the Magasin du Louvre, Paris.

View of Quadrant, looking East.

By Messrs. Richardson & Gill.

Showing value of intersecting streets breaking the lengthy curved line. The balcony treatment at the first floor offers a solution of the shop-front difficulty.

The Great Hall, 100 ft. long and 45 ft. in width and height, is sumptuously treated in marble and enriched plaster. A slight suppression of the subsidiary detail, by giving more importance to the fine order of marble pilasters, would have rendered the effect more dignified. The ingenuous device by which three bays of the side wall—marble dado, panelling, and all—divide as folding doors to open up communication with the Lecture Theatre was viewed with curiosity not unmixed with surprise. On the second floor is a smoking-room and a lesser library, hardly less extensive than the chief one; while above are caretaker's quarters, storage accommodation, and mechanical plant in connection with ventilation.

The architect is Mr. James Miller, A.R.S.A., F.R.I.B.A., of Glasgow.

CORRESPONDENCE.

The Cheap Cottage.

SIR,—Mr. Howard Ince, in your issue of the 16th inst., alluding to my former letter of December 5 last year, remarks that it contained "statements untrue and unfair." I had no intention of making either. I certainly had not seen the "cottage," but was simply criticising your very careful reproduction of the "working drawings" and the "specification"; in fact, carrying out your wishes as expressed, "in order that our readers may see for themselves." By applying a pair of dividers to the nose of the fifth, sixth, or the seventh steps, the height is under 5 ft. to the ceiling. These steps are certainly winders, and a little height may be gained by coming to the centre, but I don't consider 5 ft. a sufficient head-room for any ordinary stair. The positions of joists are very carefully dotted on the plan of living-room, and if you take the centre joists as "being fixed to the feet of the rafters," it will be the outside or wall joists in each case before another pair of rafters will fit. I don't think anyone will maintain that 7-in. by 2-in. joists, 16 in. apart (not centres), with 15 ft. bearing will be sound construction. J. H. MARTINDALE.

SIR,—In the course of his interested defence of Mr. Mitchell's £110 cottage Mr. H. G. Montgomery tells us that if he were reduced to a small income to-morrow he would cheerfully live in such a cottage himself; other gentlemen have expressed themselves in similar terms. They may be sincere, but one cannot help thinking that this cheerfulness of spirit is owing rather to the remote possibility of their being called upon to do so than from any real desire for life under such cramped conditions. Even assuming that their cheerfulness were proof against such a calamity, it only shows that some cheerful souls can put up with anything. The truth is that a good case has not been made out for this standard cottage. Even Mr. Howard Ince, whose opinion carries weight, is actually reduced to telling us that the architect is not responsible for the conditions of his time. Surely he is in part responsible like any other member of society, and in this particular matter of rural housing his responsibility is greater. Architects and estate owners who are for covering the countryside with such inadequate cottages as those of Mr. Mitchell's are directly responsible for the encouragement and perpetuation of a low standard of living.

G. LE MORRIS.

SIR,—It has been with considerable interest that I have read the correspondence on the above, and I was particularly glad to read the letters of Mr. Morris and Mr. Baillie Scott, and I fully endorse what they say with reference to the matter and the "standard" design.

It appears to me that these attempts at a "cheap" cottage are the outcome of an ignorance of the subject of housing. It is assumed by many that anything is good enough provided it is cheap, and so long as architects or others work on these lines the problem never will be solved.

The difficulty is to provide a house that is healthy, sanitary, and large enough for a labourer and his family to live in comfortably, decently, with pleasure and pride. Whether it can be done financially is a secondary matter, and it must be admitted by all, I think, that this is impossible.

Mr. Arnold Mitchell's reproduction of Mr. Troup's design, with one or two slight but very unfortunate modifications for the sake of cheapness, certainly proved that if the cottage is to be built cheaply for financial reasons, it is uninhabitable, and is a conclusive reply to housing critics and cynics.

In my opinion, the "standard" cottage is untenable for two very important reasons, in addition to several others:—

1. It is too cramped.
2. The disposition of the doors makes the living-room untenable.

The first reason, I think, is fairly obvious to all who have seen the plans. With regard to the second, imagine, if possible, an attempt to sit by the fireside and enjoy a pipe in peace and comfort. Why should a labourer be deprived of that proud possession which has for centuries been the boast of Englishmen, his fireside? In the "standard" cottage he would be sitting in the one and only "gangway" to the various parts of the house and surrounded by doors—one an external door and another leading to the back.

Mr. Montgomery says it is free from draught. I should like to ask, How did he test it? By sitting in it for an hour or two on a cold night with one or other of the doors being opened occasionally, as would happen in everyday life? Or was it by a casual inspection for a few minutes with his top coat on?

As Mr. Baillie Scott very forcibly pictures it, the countryside would become "most interesting" if this financial idea is carried to its logical conclusion.

Is it not remarkable that the very thing which has called forth so much criticism and

indignation from architects and others against the speculative builder (*i.e.*, having got a cheap design, he builds it by hundreds) should now be suggested by a prominent architect? And it is not only suggested, but an attempt is being made to flood the country with it. I think that, having butchered Mr. Troup's design, Mr. Mitchell ought to be content with building one cottage for himself. The residents in the neighbourhood and the country generally are entitled to some consideration as well as the tenants.

It is a very unfortunate thing for the profession generally that this attempt at "standardisation" should have come from the quarter it did, and I think it should be generally known that the idea meets with the disapproval of the vast majority of architects. The scheme may be financially sound, and probably is from Mr. Mitchell's and the builder's standpoint, but surely an architect should be the last man to sacrifice all other considerations to that of cheapness, even though it prove a remunerative source of income to himself.

For those who are making a fight for housing reform and town planning—and it is a hard and difficult fight—this "cheap-cottage-at-a-guinea business" has been most unfortunate; in fact, it would have been well-nigh impossible to have conceived anything that would have played better into the hands of the speculative builder and those who are a drag on the wheels of reform. I had imagined that architects, at any rate, would have aimed at the highest ideals in this housing question. CHARLES W. MILLER.

Trusts and Boycotts.

SIR,—On December 4 the Castings Trust took steps to cut off, through their 150 odd members, the whole of our supplies, the reason being that we refused to become a Trust-tied house selling at Trust-tied prices. Having organised the one boycott, they then endeavoured to create a further boycott with another allied combine.

Both of these steps have left us unmoved; in fact, they have considerably increased our turnover by reason of the inherent dislike of the British public to anything in the nature of American Trust methods.

Since the above it has come to our knowledge that certain members of the Castings Trust are informing builders that it is useless to send orders to ourselves, as we cannot supply the goods. This is a gross libel, as not only can we supply, but we can do so at anti-Trust prices also.

Might we take this opportunity of asking any member of the building trade to whom such a statement as the above has been made to communicate with us immediately?

ROWNSON, DREW, & CLYDESDALE, LTD.
P. DONALD (Director).

COMPETITION NEWS.

It must be understood that the following paragraphs are printed as news, and not as advertisements; and that, while every endeavour is made to ensure accuracy, we cannot be responsible for errors that may occur.
The list of current Competitions is printed on page 115.

New Board of Trade Offices.

We are authorised to state that the number of designs submitted in the competition for the new Board of Trade Offices is 187.

Manchester Exchange.

The result of this competition is as follows:—Accepted design, Messrs. Bradshaw, Gass, & Hope, Bolton; second premium, Mr. Edwin T. Cooper, London; third premium, Messrs. J. Theo. Halliday & Claude Paterson, Manchester.

MAGAZINES AND REVIEWS.

THE January number of the *Connoisseur* contains an illustrated article on "Some Notable Fireplaces"; but the selection is a poor one, the only fine chimney-piece illustrated being one from Cragside—a good example of Norman Shaw's "middle" manner. "The Rise of the Staffordshire Potteries" is treated by Mr. Cecil Boyce, and illustrated by some excellent examples.

"The Small Collector," by Mr. Richard Clowes, contains some examples and much interesting miscellaneous matter. A very fine illustration is given of Gainsborough's portraits of the Princess Royal, Princess Augusta, and Princess Elizabeth, from the original in the Royal Collection at Windsor, as well as the portrait of George III. as Prince of Wales, from the same collection, and good colour reproductions of Romney's Miss Mary Rookes Leedes and a pair of Khang-He Famille Verte vases, which are in the possession of Mr. L. Ramus.

The *Studio* for January contains an article on the pictures of W. Russell Flint, a Romanticist painter, illustrated by numerous reproductions in colour and tone, one of which, "The Huntresses and the Knight," is especially pleasing in design and colour. "Some Examples of Modern English Jewellery" contain some excellent designs, which show a marked tendency towards the elimination of the influence of *l'art nouveau*, which has too long characterised this branch of design. The work of the American marine painter, Mr. F. J. Waugh, forms another article; while "Six Original Etchings," by Walter Zeising, are admirable renderings of architectural subjects. "The Island of the Sirens"; one of Mr. Baillie Scott's houses, entitled "A House in the Wood," which is too much an example of his earlier manner to please us very much; "Sketching Holes in Gabes and Tunis"; and "Studio Talk" take up the remainder of an interesting number.

The month's *Burlington Magazine* contains an article on "Byzantine Silks at the British Museum," by Mr. W. R. Lethaby; "Some Further Notes and a List of the Works of Giovanni Battista Piranesi," by Mr. Arthur Hind, illustrated by four excellent examples; a very interesting article on "Hands and Feet in Indian Art," by Ananda K. Coomaraswamy; an article on "Turner in Rome," by Dr. Thomas Ashby; "Some Early Netherland Drawings," by Mr. Friedrich Winkler, illustrating the Seven Sacraments; and the usual Notes and Reviews.

The *Architectural Record* (New York) is a most excellent number. We are glad to see, from a very well-illustrated article on the New College Buildings at Princeton University, by Messrs. Cram, Goodhue, & Ferguson, that American architects can now produce Gothic work equal to the best on this side of the water. "Furniture from the Architectural Standpoint" is dealt with by Mr. H. Donaldson Eberlein and Abbot McClure; while an account is given of the eighteenth-century buildings in Greenwich Village, Manhattan. Among other contents is the seventh instalment of a treatise on lighting, by Mr. F. Laurent Godinez, a consulting lighting specialist. The high quality which characterises the contents of this excellent monthly indicates the skill with which it is edited and the wide range of subjects selected.

GENERAL NEWS.

Essex County Architect.

The following three gentlemen were selected as candidates for the final election of a County Architect for Essex in place of Mr. Frank Whitmore, who has retired from that position. The candidates were:—Mr. G. H. Widdows, F.R.I.B.A., Derbyshire Education Architect; Mr. H. P. Roberts, A.R.I.B.A., West Sussex Education Office; and Mr. G. Topham Forrest, Northumberland Education Architect. Mr. Topham Forrest was finally selected.

Health Week Committee.

The Right Hon. the Lord Mayor of London has consented to act as Chairman of the General Committee promoting Health Week (appointed by the Royal Sanitary Institute), which will be held from November 15 to 21.

The Surveyors' Institution.

Mr. J. H. Hanson has been elected a Vice-President of the Institution in succession to the late Mr. H. Herbert Smith.

Mr. George Corderoy, the newly-elected member of Council, will read a paper on "Measuring and Quantity Surveying," at the Institution, at 8 p.m., on Monday, January 26. The programme arranged for the remainder of the session is expected to include the following papers:—"Notes on Value as Applied to Rural Estate," by Mr. F. W. Hunt, Fellow; "Comments on the Land Enquiry Committee Report (Rural)," by Mr. Christopher Turner; "Comments on the Land Enquiry Committee Report (Urban)," by Mr. J. Dawbarn Young, Barrister-at-Law, Associate; "London Before the Fire, as Referred to in Sixteenth and Seventeenth Century Literature," by Mr. W. W. Jenkinson, Fellow; and "The Sanitation of Country Houses," by Mr. Cyril Herbert Smith, Fellow.

German Town Plans and Housing.

A lantern lecture, entitled "German Town Plans and Housing," will be given by Mr. Charles C. Reade at the Royal Institute of British Architects, No. 9, Conduit-street, W., on Tuesday, February 3, at 8.30 p.m., when Mr. Raymond Unwin, F.R.I.B.A., will preside. Mr. Reade (who is Assistant Secretary of the Garden Cities and Town Planning Association) lately spent two months in Germany investigating housing and town-planning conditions in many of the principal towns and cities in Germany, and has marshalled much illustrated material and many plans showing not only recent developments in modern German town planning, but the effect of many of these plans on the housing of the people. Those desirous of attending should apply for an invitation from the Secretary, Royal Institute of British Architects, 9, Conduit-street, W.; or the Garden Cities and Town Planning Association, 3, Gray's Inn-place, W.C.

The Beaux-Arts Committee: Atelier News.

The criticism of the last month's subject, "A Concert Hall on an Open Site," was given by Mr. Arthur Davis, the Patron of the Atelier, on the 14th inst. Messrs. W. G. Lovell and C. Spencer Willmott gained "mentions"—the first-named with an exceptionally well-rendered set. Two twelve-hour subjects, "A Studio for a Sculptor at the End of a Town Garden" and "A Jeweller's Shop Front," were set, for which there were eleven and thirteen sets respectively. Messrs. Bryan Watson and Robert Lowry gained "mentions." On the 16th inst., a meeting, attended by thirty members of the Atelier and Royal Academy Schools, was held, at which a paper, by Mr. Chaures (Logiste, *sous* Patron), on "Town Halls" was read by Mr. Adrian Berrington. Afterwards Mr. Chaures gave a criticism of six of the sets submitted for the Royal Academy Gold Medal, kindly lent by their authors, several of whom are members. A debate followed, in which nearly everyone took part, especially with reference to the difficulty of modern conditions. The resolution arrived at (after midnight) ran:—"That this meeting is of opinion that modern municipal necessities and desires are best met by the arrangement called the 'Civic Centre,' in which the separate element of those desires are embodied in separate buildings combined as an architectural entity."

Institution of Municipal and County Engineers.

The date for the annual Conference of the Institution of Municipal and County Engineers, to be held in Cheltenham, has been fixed definitely for June 24, 25, 26, and 27 next. It has been decided to make a special feature of town planning and also of roads, and, if possible, to arrange for an exhibition of town plans. Mr. J. S. Pickering, Borough Surveyor and Water Engineer of Cheltenham, is President-Elect.

Paris Museum and Library.

The Paris Historical Library will shortly be adequately housed in the old Hôtel Le Peletier de Saint Fargeau, which has been enlarged for its reception. The buildings are part of the block whose southern portion is the Hôtel Carnavalet, originally built by Jean Goujon and Jean Bullant (1670) and finished by Mansard in the Rue Neuve Ste. Catherine, and now the Musée Carnavalet or Paris Museum. The houses in the Rue du Parc Royal, adjoining the hotel, have been cleared away, and their site is taken for a public garden. Between the two hotels remains the Lycée Victor Hugo. The Historical Library contains some 250,000 volumes and MSS. relating chiefly to the story of Paris and a valuable store of maps of the city in the sixteenth to nineteenth centuries.

The Old Border Bridge, Berwick.

The old bridge of Berwick was built in 1610-34 at a cost of £15,000. It has fifteen arches, and is 1,196 ft. long, and, with its narrow width of but 17 ft., carries the Great North-road across the Tweed into Scotland. As the bridge, though in good state, is quite inadequate for the needs of modern traffic, a scheme is formulated to construct a relief bridge of stone, with an approach road, to cross the river at a point a short distance upstream, about midway between the old bridge and the Royal Border Bridge viaduct, near the Castle, that links together the lines of the North British and the North-Eastern Railways. The project, which involves the laying-out of a new road through the sixteenth-century walls of Berwick, is computed to cost some £40,000. It is proposed to retain the existing structure *in situ* as a borough memorial and historical landmark.

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ILLUSTRATIONS.

Second Premiated Design, Manchester Royal Exchange Competition.

WE illustrate in this issue the Second Premiated Design for the Royal Exchange Competition.

We have photographs of the selected design, but were only allowed to take them on the understanding that they should not be used without the consent of the Royal Exchange Company, and that consent has been withheld on the extraordinary ground that the selected plans will be altered. In the circumstances, we are only able to give rough sketches of the two chief plans which have been sent us.

We cannot understand the reason which underlies the action of the authorities, who have been informed what the usual procedure in these matters is. Messrs. Bradshaw, Gass, & Hope gave their consent to the publication of their design with promptness and courtesy.

St. Peter's and the Vatican, Rome.

WE illustrate another of Piranesi's engravings from "Le Vedute Romane."

The Jarvis Studentship Drawings.

WE complete our illustrations of the designs submitted in the Rome Studentship Competition, in which Mr. Louis de Soissons was awarded the Jarvis Studentship.

MEETINGS.

SATURDAY, JANUARY 24.

Aberdeen Architectural Association.—Mr. Rowland R. Gill on "Modern Decorative Painting." 7.30 p.m.

MONDAY, JANUARY 26.

Royal Institute of British Architects.—Colonel Sir Herbert Jekyll on "London Traffic Problems" 8 p.m. Announcement of award of prizes and studentships.

The Surveyors' Institution.—Mr. G. Corderoy on "Measuring and Quantity Surveying." 8 p.m.

Royal Academy of Arts.—Mr. E. S. Prior on "Mediæval Architecture: Its Nature and Basis of Art." 4 p.m.

Liverpool Architectural Society.—Mr. Arthur Keen on "Interior Design in Wren's Churches." 6 p.m.

University of London (Victoria and Albert Museum).—Mr. Banister Fletcher on "Belgian and Dutch Renaissance (and Modern) Architecture." 5 p.m.

Royal Society of Arts (Cantor Lecture).—Sir Charles Waldstein on "The Relation of Industry to Art." 8 p.m.

TUESDAY, JANUARY 27.

Institution of Civil Engineers.—Mr. H. Fowler on "Superheating Steam in Locomotives." 8 p.m.

The Institute of Builders.—Annual dinner, at the Whitehall Rooms. 6.30 p.m.

University of London (British Museum).—Mr. Kaines Smith on "Greek Art and National Life." 4.30 p.m.

WEDNESDAY, JANUARY 28.

Carpenters' Hall, London-wall (Lectures on Arts connected with Building).—Mr. F. Hamilton Jackson on "Romanesque Ornament." 7.45 p.m.

Royal Academy of Arts.—Mr. W. L. Wyllie on "Painting: Construction, Shadows, and Reflections." 4 p.m.

Manchester Society of Architects.—Paper by Mr. A. Dixon.

National Federation of Building Trades Employers of Great Britain and Ireland.—Annual meeting, in the Holborn Restaurant. 10.30 a.m.

Royal Society of Arts.—Mr. E. F. Strange on "Japanese Colour Prints." 8 p.m.

THURSDAY, JANUARY 29

Leeds and Yorkshire Architectural Society.—Mr. R. Oldham on "The English Home and English Weather." 6.30 p.m.

The Concrete Institute.—Discussion on Joint Report of the Reinforced Concrete Practice Committee and the Quantity Surveyors' Association on "Standard Methods of Measurement for Reinforced Concrete Work." 7.30 p.m.

Society of Antiquaries.—8.30 p.m.

University of London (British Museum).—Mr. Banister Fletcher on "Roman Architecture." 4.30 p.m.

University of London (Victoria and Albert Museum).—Mr. Kaines Smith on "Beauty in Colour." 3.30 p.m.

FRIDAY, JANUARY 30.

Institution of Civil Engineers.—Mr. E. W. Monkhouse on "The Testing of Materials for Use in Engineering Construction." 8 p.m.

Leicester and Leicestershire Society of Architects.—Mr. H. W. Johnson on "The Planning of Hunting Stables." 8 p.m.

Royal Academy of Arts.—Mr. E. S. Prior on "The Roman and Byzantine Contributions to Mediæval Art." 4 p.m.

Architectural Craftsmen's Society, Glasgow.—Mr. G. Hunter on "Glass, its Manufacture and its Uses." 7.45 p.m.

THE LONDON SOCIETY:
"LONDON OF THE FUTURE."

THE London Society gave a dinner on Tuesday at the Waldorf Hotel, at which Sir Aston Webb, C.B., K.C.V.O., R.A., gave an address entitled "London of the Future," which was followed by a discussion.

Mr. Carmichael Thomas, Chairman of the Executive Committee, presided, and among the company of about 150 ladies and gentlemen present were Sir W. Ramsay, Sir Boverton Redwood, Sir J. Crichton Browne, Sir G. Riddell, Mr. Solomon J. Solomon, R.A., Mr. Yoshio Markino, Sir G. Frampton, R.A., Sir Thomas Brock, R.A., Colonel Hellard, Sir W. Bull, M.P., Mr. Harold Cox, Sir John Dickinson, Professor Dalby, Mr. Gordon Selfridge, Mr. J. S. Wood, the Mayor of Westminster, Mr. Carr Gomm, M.P., Mr. George Cawston, Mr. H. V. Lanchester, Mr. H. H. Statham, and Mr. H. W. Wills.

Sir Aston Webb, R.A., drew a dream picture of the London of 2014, a London from which smoke and dirt had been banished, and the waters of the Thames were so clean and pellucid that fishing for salmon and trout was carried on from embankments which lined both sides of the river, and there was a salmon weir at London Bridge. The bridge itself was like a street, with fine shops and beautiful houses on either side, and helped to make Southwark as valuable as the Strand. After he awoke from his dream a friend reminded him that the most picturesque features of many cities were their bridges with houses on them, and that the great revenue of the Bridge House Estate Committee of the City Corporation arose originally from the houses on old London Bridge. St. Paul's Cathedral was still standing, and was safe for centuries. A law had been passed that no sewers or tunnels should pass within 150 yds. of it. Party no longer entered into municipal politics, and so the south side of the river was embanked and many other things were done which formerly were left undone. The County Council buildings by Westminster Bridge were now used as Government offices; while close alongside was the Imperial Parliament buildings, where the Parliament of the Empire met and thought imperially once every three years. Along this south embankment were other splendid buildings and picturesque warehouses arched over the roadway in accordance with a Report prepared by the London Society. London University was where it was in 1914. In the Imperial College all the museums were located, and his guide said that South Kensington had gone rather out of fashion as a residential quarter, and the houses down Exhibition-road and Queen's-gate had been turned into hostels for students. He asked why everything looked so bright and clean, and was told that this was because they had done away with the smoke and only used smokeless materials.

In Southwark there was a green square, with a statue to Sir William Richmond, put up in gratitude by the Government. Southwark had been rebuilt and the roofs of the houses were flat, and here the people sat in the summer evening on their roof gardens, looking at London twinkling in the evening sun. His guide explained that aeroplanes had been forbidden over London, because they were apt to drop unpleasant things, and occasionally drop themselves, and they became a nuisance. Cannon-street railway bridge and the bridges at Ludgate-hill and Charing Cross had been taken down, and the old glass railway termini also. Instead, two big terminal stations had been built, one for south and one for North London, and they were connected by a tunnel. The House of Lords, his companion said, was stronger than ever. In a bird's-eye view he obtained of London he noticed that, besides the railway tracks out of London, there were great arterial roads, stretching out in all ways. They were 120 ft. wide, and there were two divisions, one for slow-moving traffic and one for swift traffic. The tramways had been done away with, and the people of that day had wireless telegraphy, wireless telephones, and wireless electric light. There was a belt of green round London, a sylvan glade formed out of various town-planning schemes, and on Primrose-hill there was a great monument to Shakespeare. His companion told him that all these things were arranged now by a Ministry of Art, who, assisted by a large Committee of artists, had such matters referred to them. The housing problem had settled itself to a large extent, for, with the increase of facilities for getting in and out of London, people moved out further from the centre. Other improvements he saw and heard of were a Central Government of London, clean sewers, and the protection of old London, which was better than we had to-day. In fact, this country, like France, had realised that art was a great asset to any country and any city. On the west side of Trafalgar-square was a great building occupied by the Ministry of Art, and over the portals was inscribed in bold letters, "Erected by the British Government to the Glory of British Art." But he awoke from his dream to hear his friend saying that it was impossible to improve London; that it was too huge, too dirty, too smoky.

Sir William Ramsay said the chief art of mankind which he had learned in the past, and which he was getting to know better, was the conveyance of material. If we could liquefy our letters they could get through a pipe; they could go still more easily if we could gasify them, and if we could electrify them they would go more easily still. He did not think gas fires were as comfortable as coal fires, and indeed he thought that the perfect gas fire had yet to be invented, but he could imagine a carpet permeated by wires through which was sent a current of electricity. He thought the smoke question lay at the bottom of beautifying London. It appeared to him that they must make a crusade against coal fires; they could not stop people using them, but they could tax them.

Sir Boverton Redwood said the time might come when we should have hot air in winter and cold air in summer laid on to our houses by municipal enterprise.

Sir J. Crichton Browne trusted that London, which had been called the modern Babylon, would emulate Babylon in its splendour, magnificence, and in its smokelessness.

Mr. Solomon J. Solomon, R.A., said that if the Utopia which had been dreamed for them were to materialise, then it was obvious that æsthetic consideration must be included in the law of the land.

Mr. H. H. Statham also spoke of the necessity of schemes being thoroughly discussed before being put in hand.

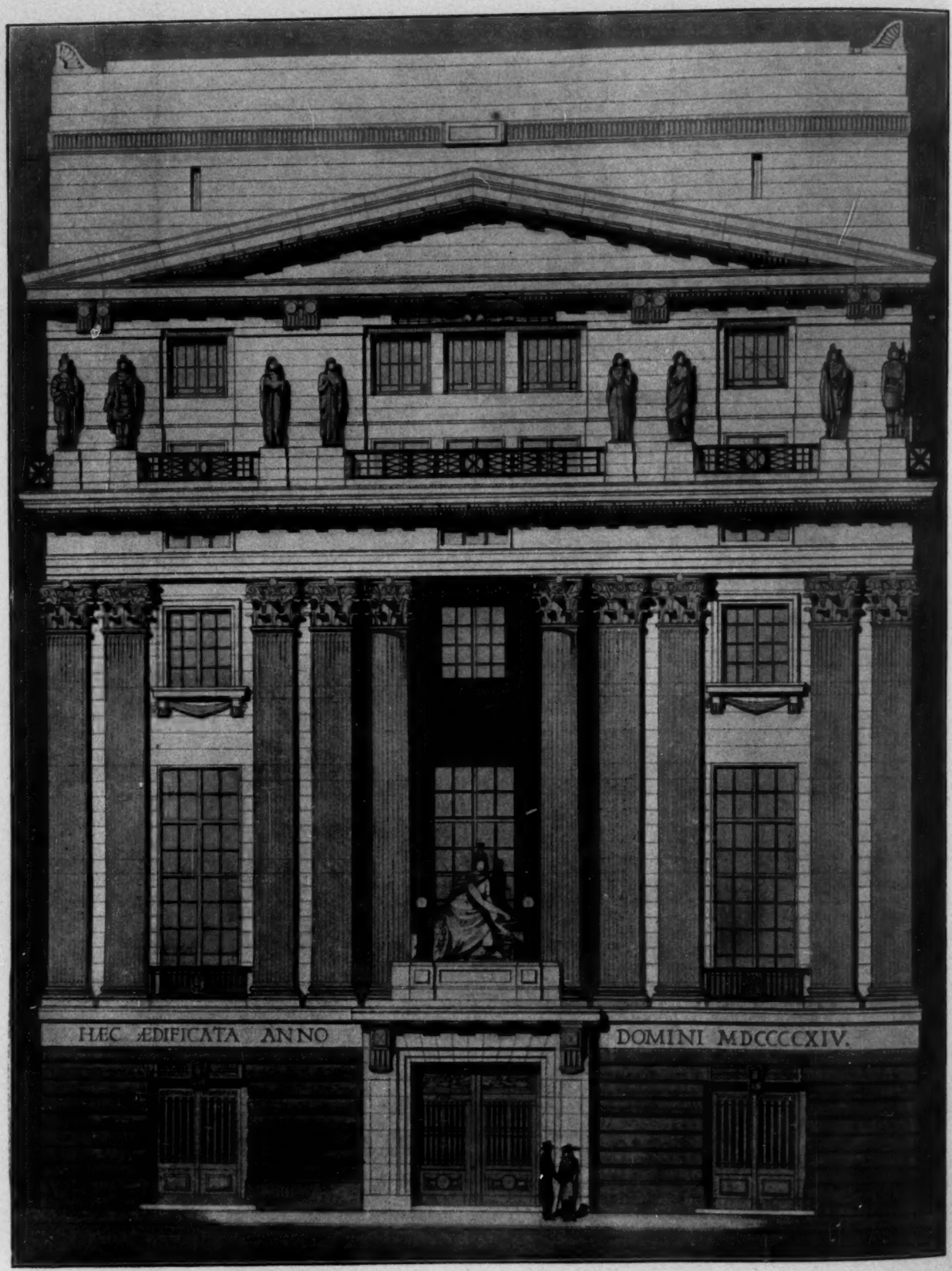
FIFTY YEARS AGO.
From the *Builder* of January 23, 1864.

FROM an address of Professor Smirke:—

It is that *latter* kind of beauty which the Germans, borrowing from Greek sources, have taught us to call *æsthetic*, and which, I think, needs your chief study, for it is a kind of beauty far more difficult to understand, or define, or hold in our intellectual grasp. The beauty of *fitness* may be measured and weighed by the easy standard of common sense; the other, more subtle, more immaterial, may be perceived and yet not measured or even explained. Like a wreath of mist, the rainbow, the mirage, or the northern aurora, it is a reality; it is there, before us, in a thousand forms of loveliness; yet the vision eludes that closer scrutiny we desire, and refuses to submit to the test of a stricter investigation.

Unfortunately for the teacher of art, it is far more easy to say what is beautiful than to say wherein that beauty consists.

[*** Though we admit that a thing of beauty is a joy for ever, the definition of the nature of beauty is one at which it is difficult to arrive.—ED.]



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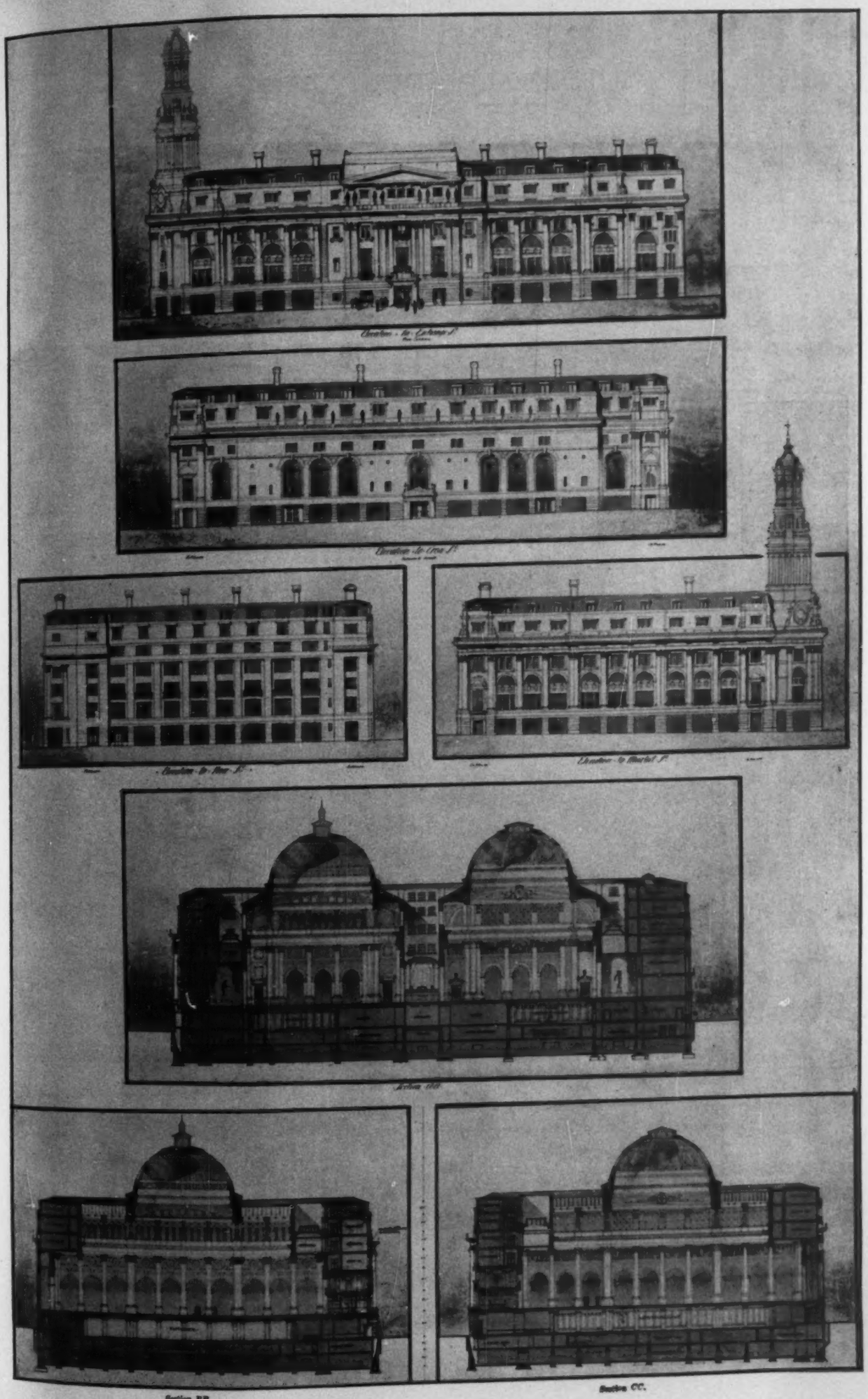

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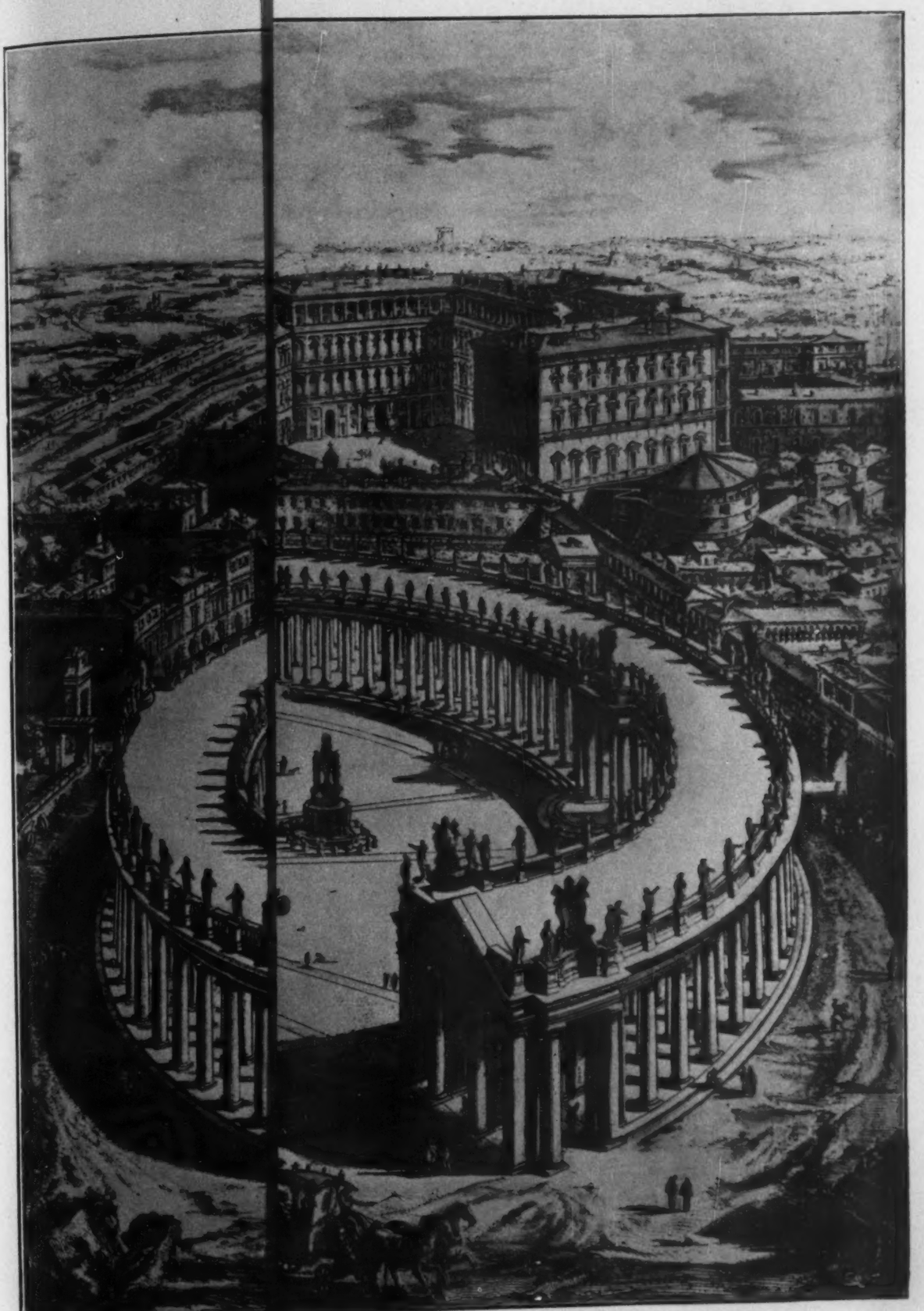
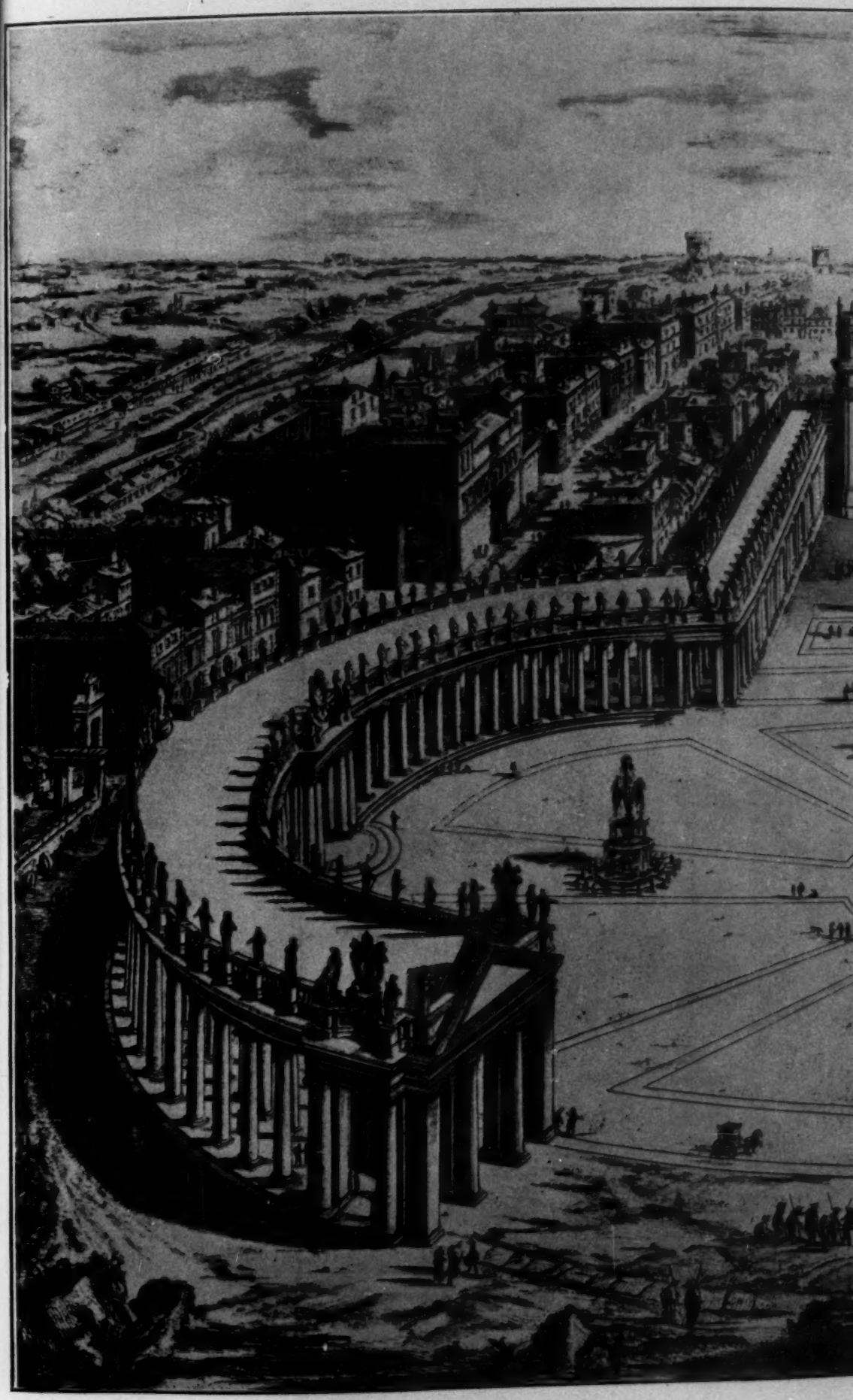
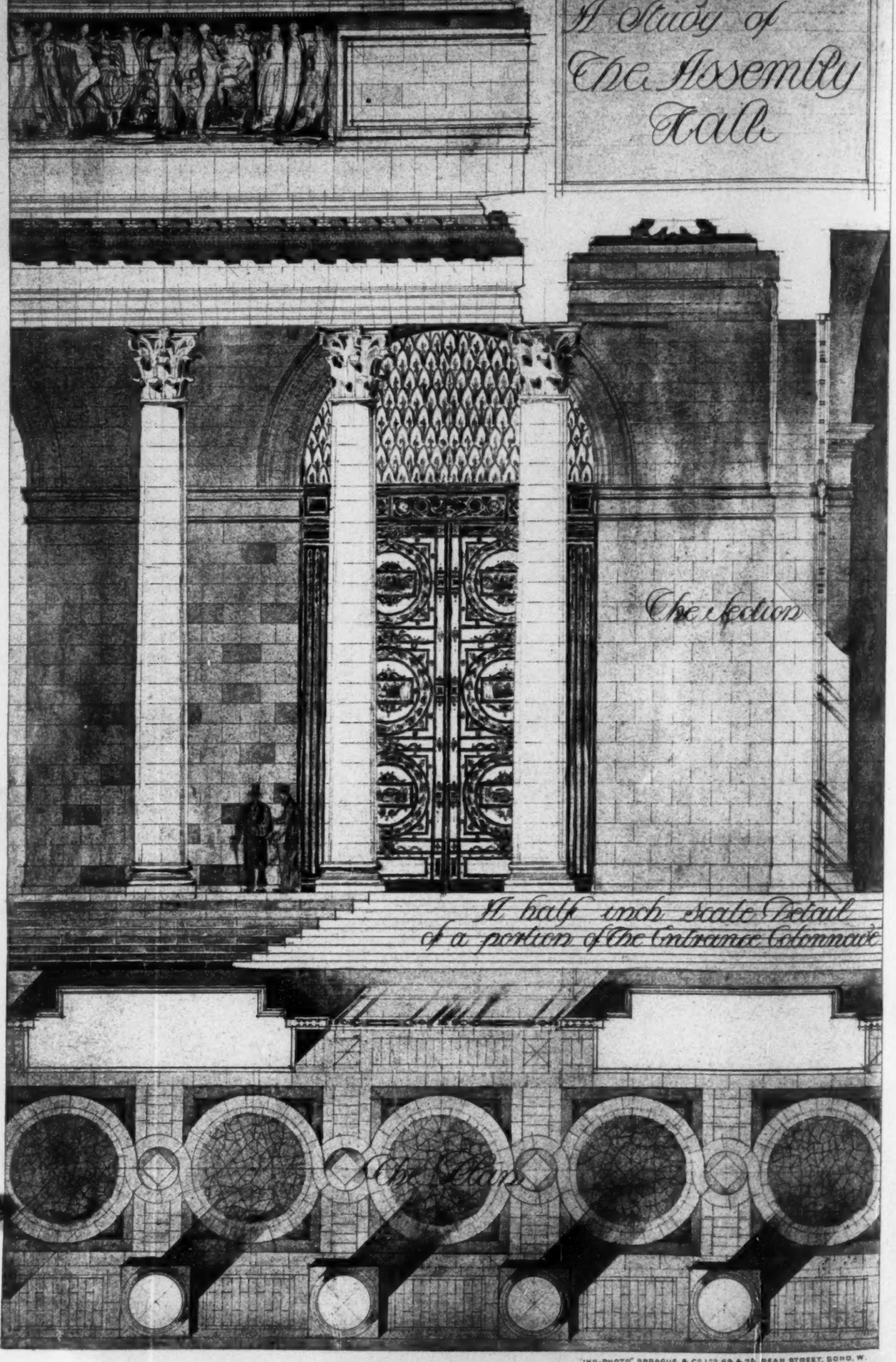




S. PETER'S AND THE VATICAN.

(From Piranesi's "Le Vedute Romane.")



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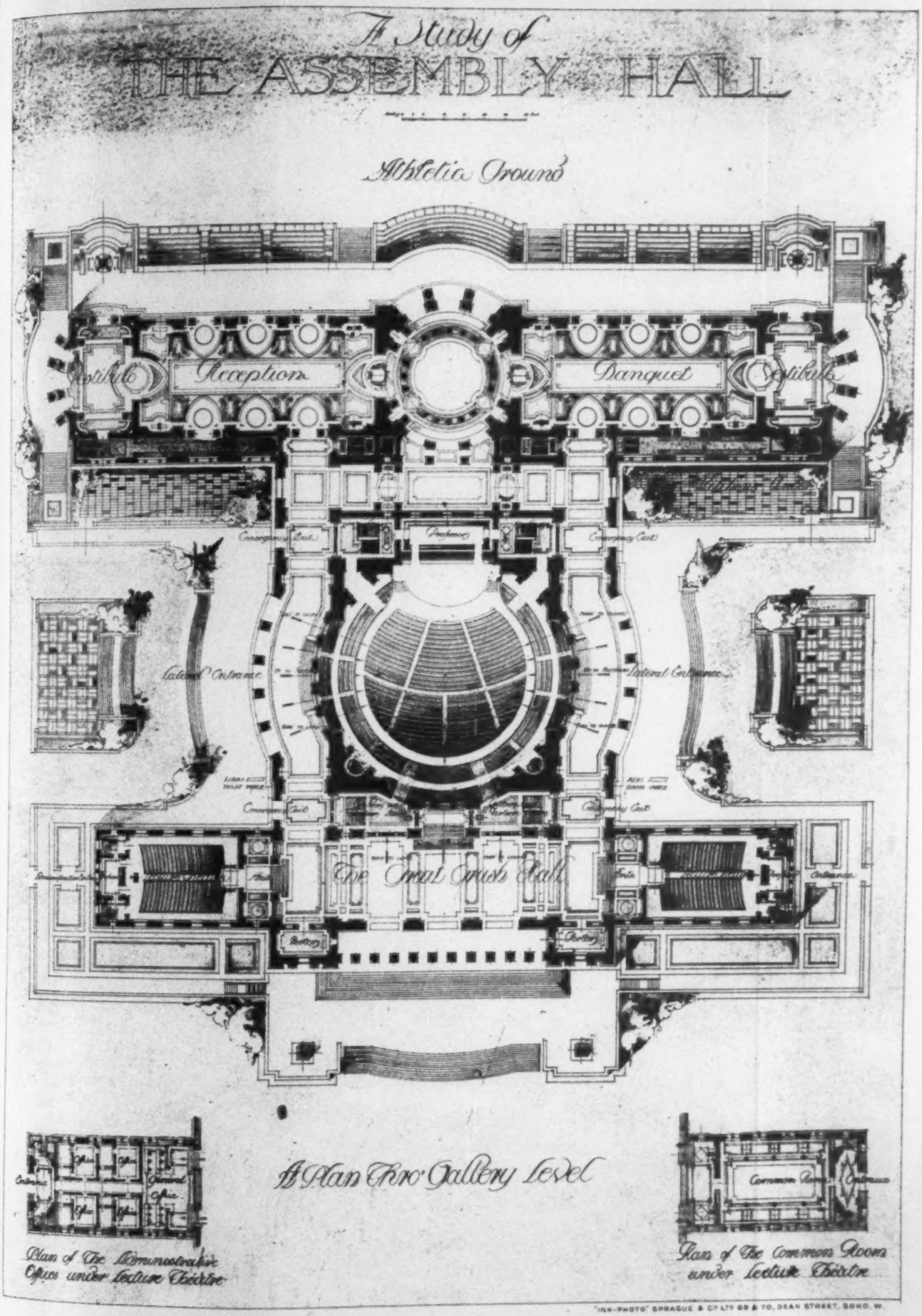
By Mr. Louis de Soissons.



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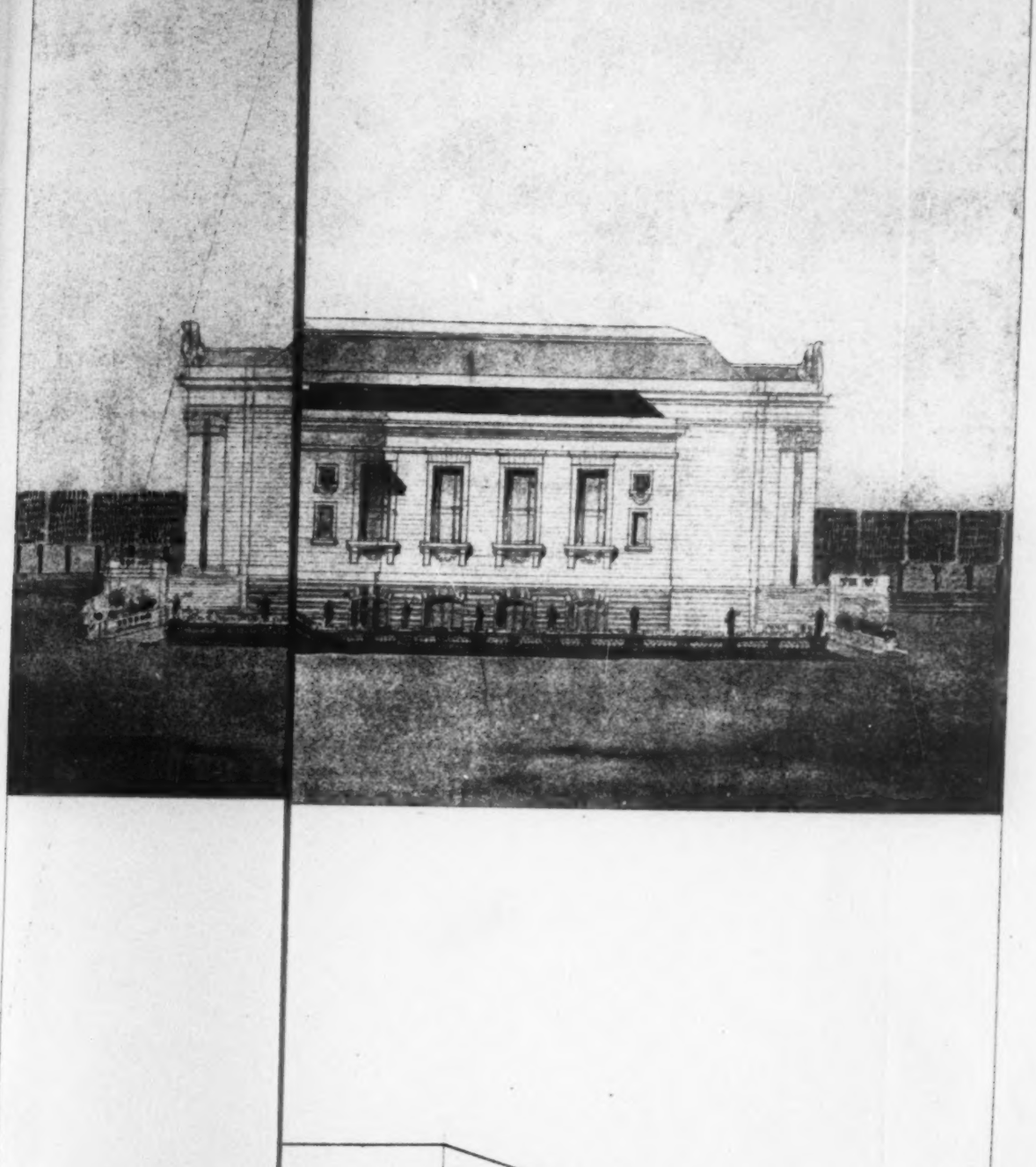

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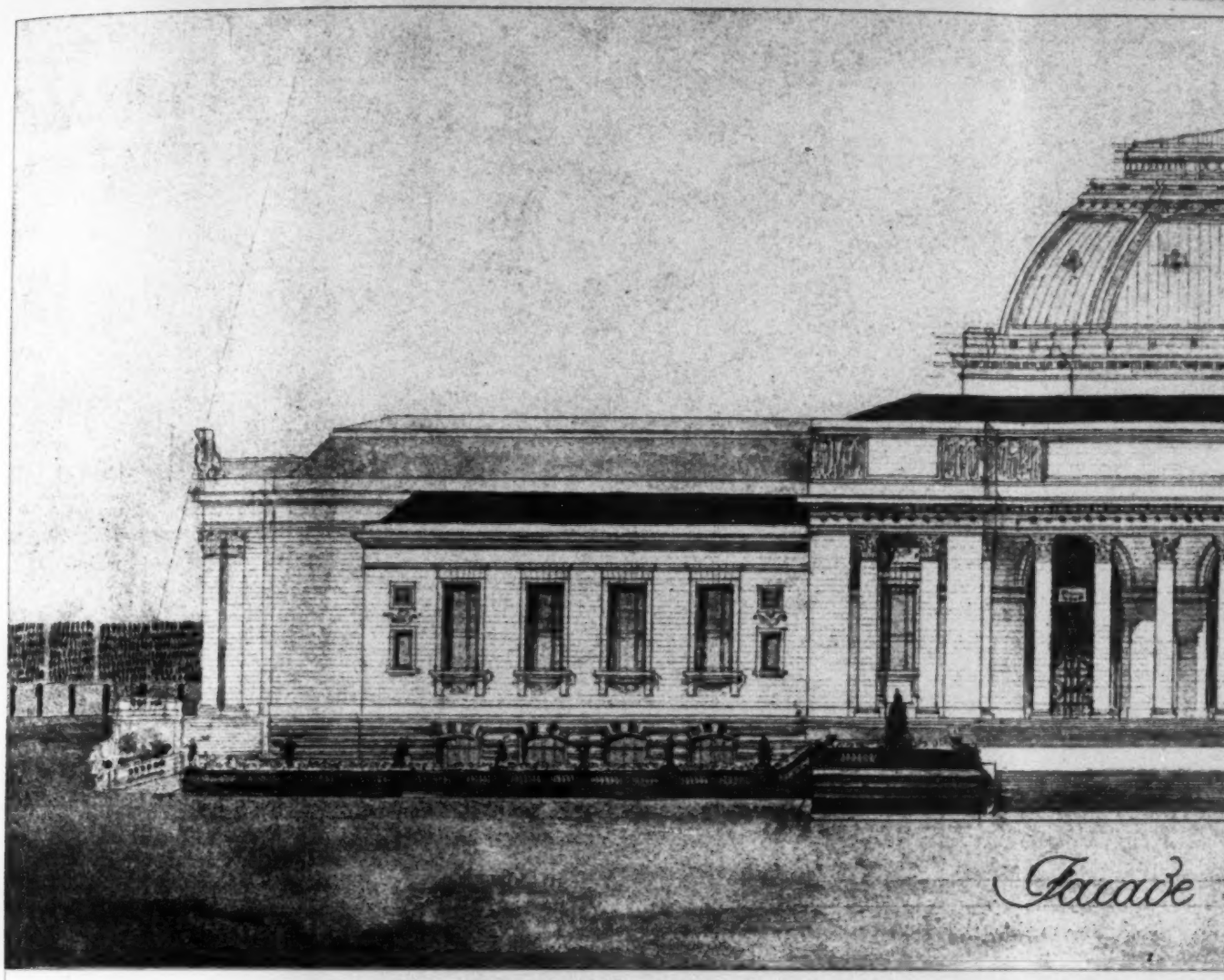

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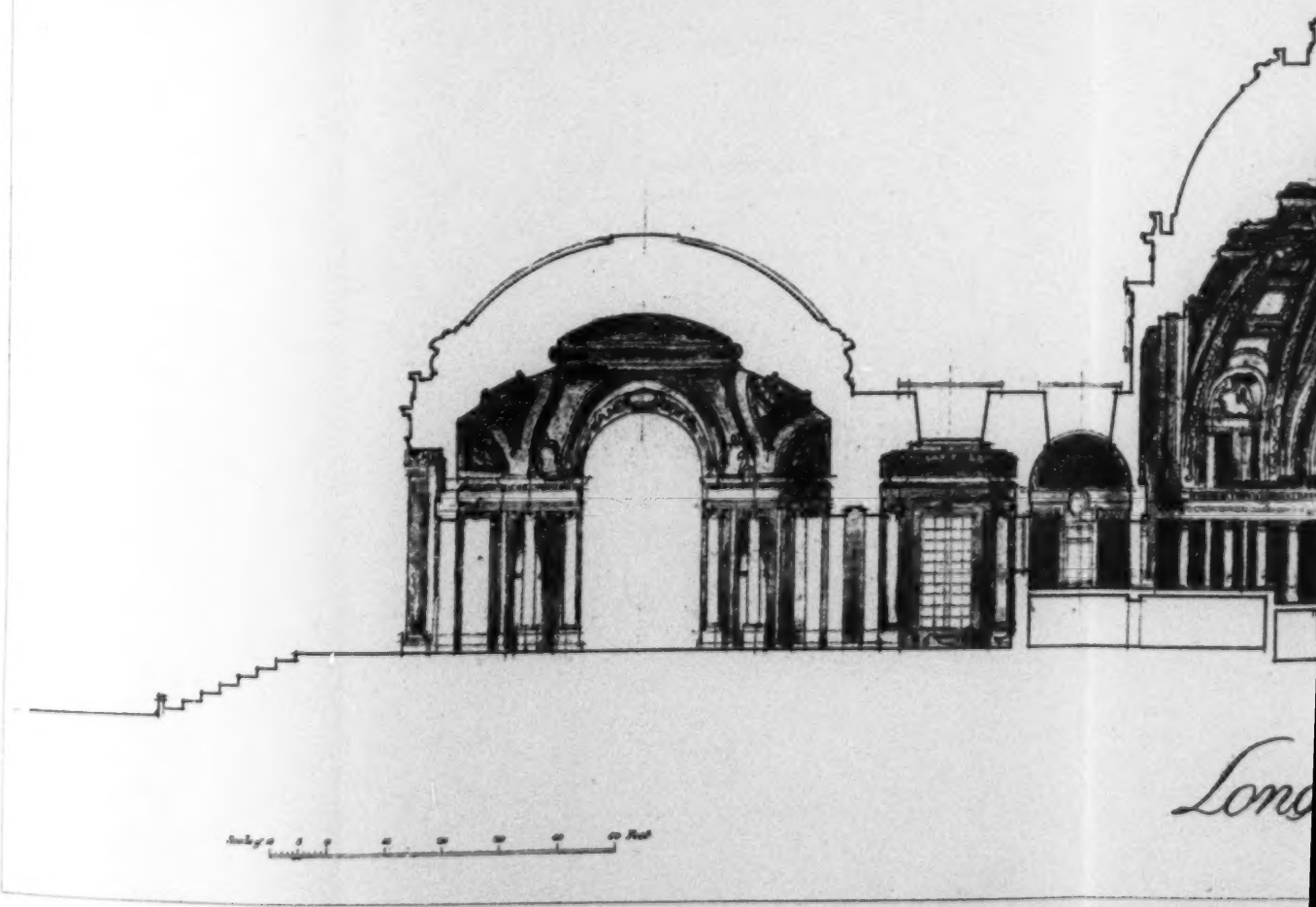

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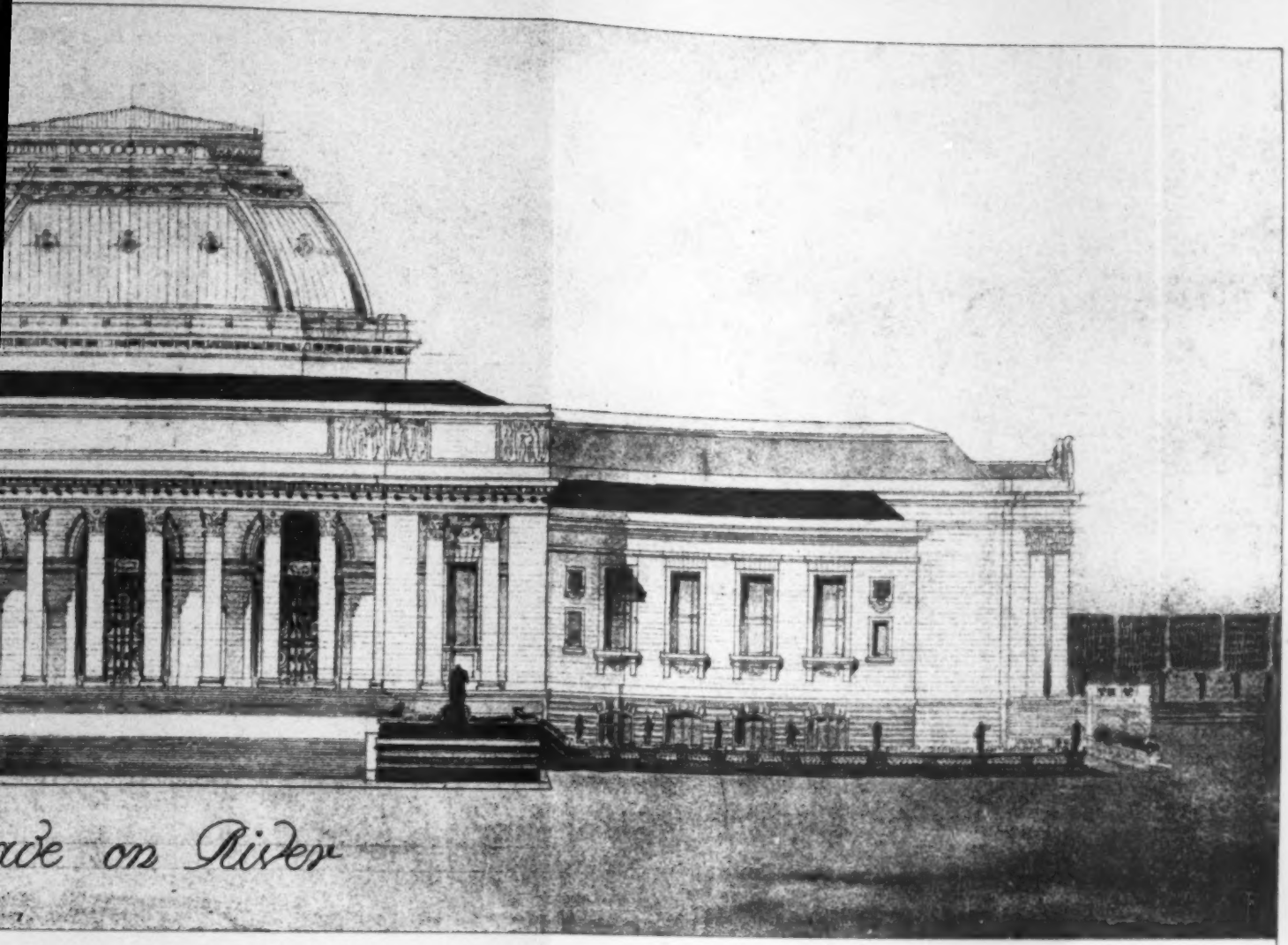

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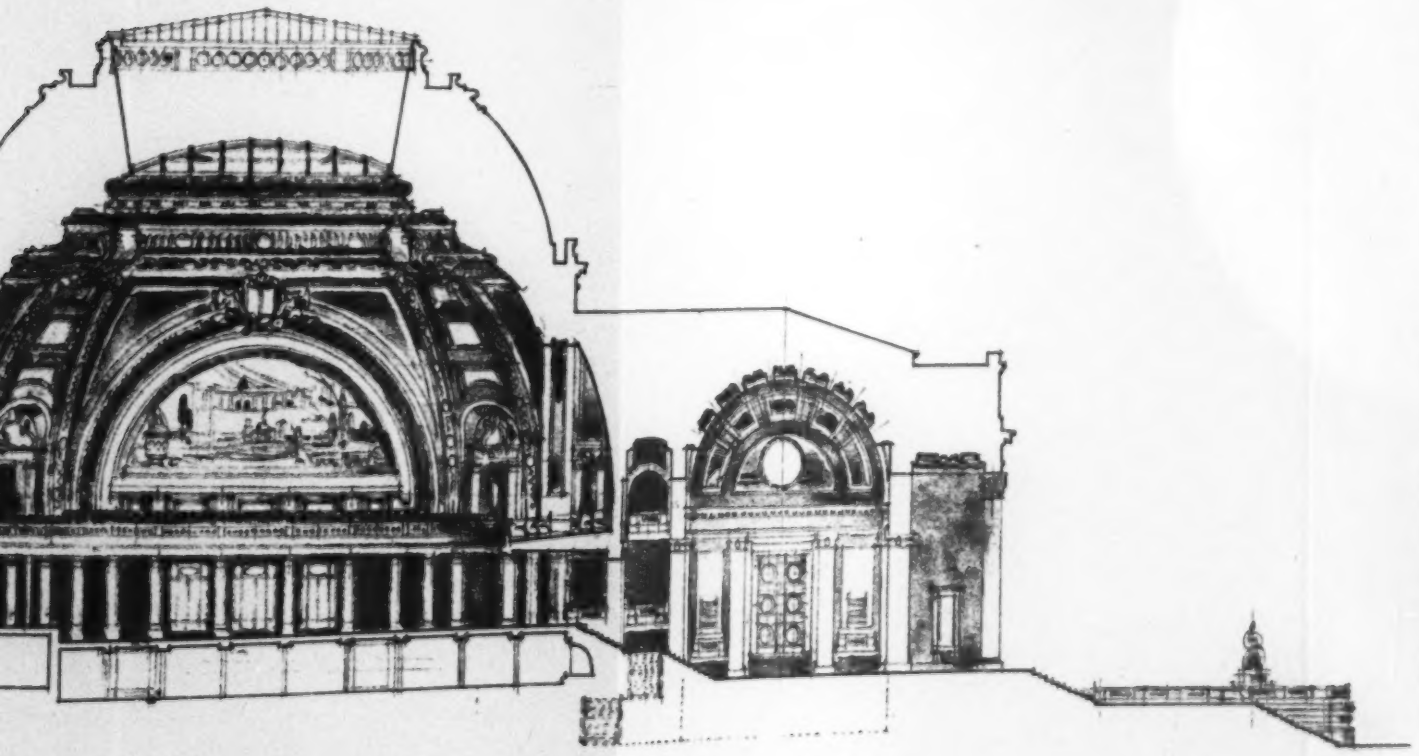

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THE ROME SCHOLARSHIP COMPETITION

MR. LOUIS DE SOISSONS

LIGHTING, HEATING, AND SANITARY ENGINEERING SECTION.

ELECTRICITY FOR COUNTRY HOUSES:

III.—ILLUMINATION, FITTINGS, AN APPARATUS.

Of the various manifestations of electrical energy, such as light, heat, mechanical power, ætheric waves, etc., there is no doubt that light is the most important from the domestic point of view. Electric light, originally introduced in a commercial and practical form in 1882, may be said to have almost entirely superseded gas—at any rate, in private houses of any size and recent construction, and in shops, business houses, and industrial buildings. The fact is so obvious that it is unnecessary to enlarge on it. We have already referred to the great impetus given to private plants by the introduction of the metal filament lamp; and about that time special attention was directed to the science of illumination in connection with electric light. This science was not entirely a new one, as it had been evolved and established on a sound basis in America after the introduction of the incandescent gas mantle. But its application to gas was strictly limited at the time, because gas mantles will not burn in any position, but only vertically upwards and downwards, whilst they had originally to be accessible for lighting by hand, which made their use for indirect or concealed lighting entirely out of the question. We shall refer to the protean use of electric lamps when discussing fittings, but the point will naturally arise as to why the science of illumination was not applied more generally to the original carbon filament lamp, which was, after all, the cause of the invention of the incandescent gas mantle.

It is quite true that there was a certain amount of indirect lighting done with carbon filament lamps, but this was only in the homes of the very rich or in certain public buildings belonging to well-to-do societies. The carbon filament lamp was so inefficient compared with the gas mantle and the present metal filament lamp that it only held its own on account of its great convenience and cleanliness. When used for indirect lighting the expense was so great that it was only employed for this purpose under the exceptions already referred to. The coming of the metal filament lamp, however, changed everything in this respect. With an efficiency of from four to six times as great, and a much higher intrinsic brilliancy, it not only lent itself to greater extravagance in lighting, but obscuration, diffusion, or concealment became almost a necessity. The Holophane system, which had been evolved in America for gas mantles, was adapted for electric lamps, and the science of illuminating engineering was established on a firm basis, with a society for its propagation. The makers of the Tantalum lamp quickly appreciated the value of Holophane reflectors as diffusers when this lamp was first introduced, because they were able to show that the use of these accessories helped to compensate for the relatively high initial cost of the lamp by diffusing its light over a greater area, thus making it possible to employ only one lamp where previously two or more carbon filament lamps, each of the same nominal candle-power, had been used. With the introduction of metal filament lamps of various shapes and sizes the Holophane company produced shades and reflectors in ever-increasing number, with varying designs for the purpose of reflecting to all sorts of angles and of diffusing over different areas. An association for the science of illuminating engineering was established in London a few years ago, and each manufacturer of metal filament lamps took up the subject and introduced special lines of reflectors, diffusers, fittings for indirect and semi-indirect lighting, in combination with Holophane glassware or special glassware of their own. Such names as Veluria, Mazdalux, X-Ray Reflectors, Alba glass, Indira, Alabas, Equiluxo, etc., have become quite general, and most of these firms have experts on their staffs who will inspect rooms with the view of advising on the best method of illumination.

Generally speaking, the science of illumination receives its broadest applications in the lighting of large enclosed spaces, such as public halls, shops, large offices in banks, etc; but it is now being applied largely in private houses, particularly in reception-rooms and living-rooms. In places of this kind it is really most essential for the sake of the eyes that the source of light, with its high intrinsic brilliancy, should not be exposed to the retina, but that the lamps should be partially or wholly concealed and the light reflected in a particular direction, or diffused generally, in accordance with the requirements of the users. It is essential that plenty of light should be directed on to any work that is being done, such as sewing, reading, writing, music; but there is no reason why it should also be wasted on the rest of the room if this is not necessary. On the other hand, where general illumination is required, as in a ballroom, drawing-room, or dining-room, it is a great mistake to light these places in patches or with lamps which can be seen.

The average householder and electrical contractor have no ideas on the subject of scientific illumination, and merely think that it is necessary to have a lamp here or there to produce the lighting they require. The result is frequently that people complain of glare or insufficient light where they want it, or dark shadows; they may also spend more in wiring and fittings than may be necessary in order to get first-class results. Take, for example, the conventional manner of lighting the usual rooms of a house. The dining-room is fitted with a large umbrella shade on a rise and fall fitting, so as to throw plenty of light on the table, and a bracket at each side of the chimney-piece and possibly also of the buffet. The umbrella shade, being lined with white silk, forms an inefficient reflector, and throws the rest of the room into darkness, which is accentuated by the glare of the bracket lights in the eyes of the guests. The drawing-room is fitted usually with a centre electrolier, some wall brackets, and a floor lamp or two. The last are usually only ornamental luxuries; the others produce glare. The study has a small three-light electrolier and perhaps a table lamp. The latter is all right for reading purposes, but the former is irritating. The best bedroom has a two-light fitting over the dressing-table and perhaps a pendant in front of the wardrobe. The rest of the room is in darkness, and if a small object is dropped it is not easily found. It would be interesting to hear the opinion of, say, an architect's client if the rooms were built in such a way that daylight were parcelled out in small patches on a similar scale. He would say that it was a badly-lighted house, and that it was provided with insufficient window accommodation.

Now let us consider how these rooms might be lighted. A dining-room is a place where people eat, and one should eat under congenial and pleasant conditions. A public dining-room is always well lighted, because the proprietor wishes the guests to feel merry and contented. For the same reason a private dining-room should be well lighted from above by diffused light, which will give the room a cheerful appearance and light up all parts of it. A drawing-room, where people gather for the purpose of listening to music or intelligent conversation, does not require such brilliant lighting, but rather a soft, general illumination which will induce a restful state of mind, so that the sense of hearing may not be irritated or disturbed by the sense of sight. The lighting may be effected by lamps concealed in the cornice or by indirect or semi-indirect fittings suspended from the ceiling at a suitable height. A study or library certainly requires one or more table lamps, but for general lighting, to find books, etc., a fitting close to the ceiling should be ample. A two-light fitting is quite satisfactory in a bedroom, although side lights fixed to the dressing-table are better. But the room requires general illumination as well, and should have one or more lights suspended in the centre and well shaded. It must be remembered here that a person lying in bed cannot stand the glare of a bright light or of a light on the ceiling. Many other examples could be cited, and much could be written about the number of foot-candles required for this or that kind of room, but the strictly scientific point of view must be reserved to the expert. It is only possible, within the scope of this article, to lay down some general rules to be observed in order to secure satisfactory illumination.

The first thing to remember is that the eye cannot stand bright objects without irritation, and therefore all sources of illumination must be toned down—not by an inefficient obscuring process, but by breaking up the rays and diffusing them in all directions. The second point to remember is that, where the source of light cannot be concealed altogether, as behind a cornice or in an opaque bowl reflector (indirect lighting), it must be at such a height as to be above the line of vision. Naturally, the longer the room the higher the lamps must be fixed, otherwise a person standing at one end of a long room will be hit in the eye by a line of lights making an acute angle with his line of vision. Thirdly, the question of colour and texture of decorations enters very largely into the degree of illumination to be obtained from a given system of lighting. Rooms with dark decorations must be more liberally provided for than rooms with light shades, especially with greens, blues, and yellows. Red, and all combinations of it, absorb a large amount of light. Smooth surfaces also reflect more light than rough surfaces; white ceilings than dark ceilings. Therefore, all these matters must be taken into consideration, and it is impossible to make any general rules which will apply to all colour schemes, except that indirect lighting necessitates white ceilings and light walls, and that where the decorations are dark semi-indirect or direct lighting must be employed.

We will now turn to the question of fittings. The chief advantages of the electric light over gas or oil are its adaptability to every position and situation, irrespective of danger from heat or dirt; the smaller space occupied by the source of light; and the manner in which it lends itself to artistic treatment. These facts were so obvious to the early designers of electric light fittings that they overdid their application by the production of fittings which were artistic at the expense of utility. The elaborate electrolier, with its bunch of lamps worrying the eye in every direction, interspersed with conventional metal leaves and flowers; the hideous rise and fall fittings for dining-rooms, with their masses of cords and pulleys, and a corona of lights up above to accentuate all this gear; the Louis candle fittings, which were all right for ordinary candles but not for individual lamps of about 5-candle-power each; the wooden atrocities, which were the vogue a few years ago and which gave rooms the effect of having part of the furniture hanging from the ceiling. These examples might be amplified manifold, but they will suffice to show that electric light, whilst adaptable to all situations and positions, has artistic and utilitarian limitations. At the present day the principles of illumination are better appreciated, and people are beginning to understand that in order to light a room properly it is not necessary to hang elaborate metal and glass structures from the ceiling, which are neither pleasing nor useful, besides being sometimes very expensive.

The forms of lighting best suited to modern requirements and metal filament lamps may be divided into direct, semi-indirect, and indirect, and suitable fittings, combining pleasing appearance with efficiency, may be had in many forms. Direct lighting may be divided into complete reflection, semi-diffusion, and diffusion. Complete reflection, such as would be provided by an opaque reflector, is seldom employed except for reading lamps and workshop lighting. Semi-diffusion involves the use of Holophane or similar glassware, of a prismatic nature, forming a translucent reflector which also diffuses some of the light horizontally and upwards. These reflectors are generally

employed in small rooms, where they are either suspended by a cord or fixed direct on the ceiling, depending on the use of the room. For instance, in a kitchen or nursery the reflector should be right out of the way on the ceiling. In a bathroom or lavatory it may be suspended from a cord. Complete diffusion is provided by prismatic or other diffusing spheres and hemispheres. Such fittings are the best for small or medium-sized living-rooms and give beautifully soft results. A hemisphere may be fixed on the ceiling, mounted in a metal ring or corona, and containing one or more lamps. A sphere, or combination of spheres or spheroids (each, of course, comprising two halves joined by a metal ring), may be hung from cords or from three chains, according to the size of the room and the height of the ceiling. When fittings of this kind have once been tried the old-fashioned electrolier or pendant will never be reverted to.

Semi-indirect lighting may be employed in rooms of any size, but is more expensive than direct lighting. It involves the use of hemispheres, or bowls, which reflect most of the light on to a white ceiling and permit some of it to be diffused downwards or sideways. The effect is very soft, but in order to obtain good results the fittings must be hung fairly close to the ceiling, and should be provided with powerful lamps or several small lamps. Indirect lighting is still more inefficient, and is generally provided by fittings having opaque bowls containing metal or glass prismatic reflectors and suspended by three short chains from the ceiling. Where the rooms are large the fittings must be carefully spaced so as to give a perfectly even distribution of light from a white ceiling, and so as not to throw the shadows of their bowls on the floor. Perfect diffusion can be obtained by this means, and the most restful form of illumination, but the initial cost of the fittings and lamps is high, and the lamps necessarily consume a large amount of current per effective candle-power. Cornice lighting is another form of indirect illumination, and can only be employed when there is a recessed cornice and preferably a ceiling curved at the sides. It is not usual to adopt this form of lighting except in rooms of some size, specially built for the purpose, such as private music-rooms. The lamps are of tubular shape, with a hollow reflector behind, and form a continuous line of light all round the room. The effect is beautiful, but very expensive. Another form of diffused lighting, which is quite special, is produced by fixing lamps behind a translucent glass ceiling. This is found in the House of Commons, and also in some hotels, but is not often employed for private houses. This concludes the remarks about fittings, and if it is considered that the ordinary metal brackets and electroliers have been ruthlessly eliminated, we may say that it is necessary to advance with the times, and it is impossible to advise the use of inefficient apparatus and systems when more efficient ones are in existence. There are some who may still think it is all a matter of taste, and for those who think so it is still possible to purchase fittings which will satisfy their taste at the expense of illuminating efficiency and restfulness.

It would not be appropriate to conclude this series of articles without a general reference to other current-consuming devices which can be usefully employed in country houses. If the plant is only designed with a sufficient margin of power many other useful functions can be carried out by electricity, and if the plant is a high efficiency one, such as a Semi-Diesel engine or suction gas plant, with economy. The smallest current users next to lamps are electric fans for keeping the air in motion; Ozonair apparatus for removing stuffiness, kitchen, stable, and kennel smells, etc.; and sewing-machine motors. Next come small motors for knife-polishing, boot-cleaning, chaff-cutting, etc.; small heating and cooking utensils, such as laundry-irons, hot plates, kettles, shaving-pots, toasters, etc. Then there are vacuum cleaners, electric grills, radiators, ovens, and so on, up to the most elaborate kitchen outfits. In fact, there is practically nothing in the domestic power, heating, or cooking line which electricity will not accomplish, and that economically if used under the right conditions. As a matter of fact, it pays better to employ a plant as much as possible throughout the whole of the twenty-four hours rather than to use it only for lighting for a few hours, because one obtains a larger return in useful work for the interest on capital sunk than would otherwise be the case.

DAYLIGHT ILLUMINATION.

At the adjourned discussion on Mr. Waldram's paper upon "Some Problems in Daylight Illumination" at the meeting of the Society of Illuminating Engineers held at the rooms of the Royal Society of Arts on Thursday, January 15, Mr. Waldram added to his paper the following notes upon the difference between the real and the apparent amount of light enjoyed at a reasonably well-lit situation, and upon the accuracy with which measurements of the light in rooms corresponds to those taken simultaneously in exact models with the surroundings exactly reproduced.

To illustrate the first point, Mr. Waldram took the case of the average worst desk in a standard elementary school classroom, which he described as a position comparable with the middle of an ordinary room; and receiving on grey days 1 per cent. of the light falling on the sill with a free horizon, or ½ per cent. of that falling upon a card on the roof. He then took 1-foot-candle as the mean illumination required for ordinary purposes, pointing out that he had noticed that his draughtsmen habitually failed to light up until the daylight illumination on their boards fell to about one-third of a foot-candle, whilst he personally did so at about one-fourth to one-fifth of a foot-candle.

Mr. Waldram proceeded to explain that daylight was tidal, with long high tides in summer and short low tides in winter. In the same way that a boat drawing 15 in. will float as easily in 18 in. of water in a creek as in an estuary 18 ft. deep, or in the open sea, so also will the eye take the 1-foot-candle, which is the apparent limit of its requirements in diffused daylight as readily from the back of a room enjoying 2-foot-candles as from the front of the same room, where 20-foot-candles are available, or outdoors where the light may be 800-foot-candles; and it is no more conscious of the actual amount of light it is drawing from than a boat is of the depth of water in which it floats, because the iris diaphragm automatically keeps the necessary "draught" of the eye at about 1-foot-candle.

The author also described a long and stringent series of tests recently carried out by Professor Clinton and himself at University College to ascertain whether observations of the light at eighteen points in a large laboratory, comprising seven windows of different character, aspect, and direction, corresponded with simultaneous observations at similar positions in a scale model of the laboratory and its surroundings placed on the roof. After describing the earlier difficulties due to the fact that the instruments used proved to be sufficiently delicate to be affected by small inaccuracies in the exact tinting of the walls of the model and of the opposing building, Mr. Waldram pointed out that exact correspondence could scarcely be obtained in inclement weather, and he claimed that the small differences which appeared were only what might be expected when one observer was at work with a delicate instrument in a warm room and the other was taking simultaneous readings on a frozen flat in a cold wind; and that had the results corresponded exactly in such circumstances they would have been open to question. He mentioned that some years ago he had, in summer weather, obtained identical results in a larger model papered with the same paper as the room—a somewhat important detail.

He suggested that it was scarcely possible to exaggerate the importance of severe actual tests of the accuracy of observations in models as opposed to mere opinion.

INSTITUTE OF SANITARY ENGINEERS:

PRESIDENT'S ADDRESS.

On the 7th inst. Mr. John D. Watson, M.Inst.C.E., Engineer to the Birmingham, Tame, and Rea District Drainage Board, delivered his inaugural address as President of the Institute of Sanitary Engineers at Caxton Hall, Westminster.

In the course of his address the lecturer said:—

"The engineer's work may appear at first sight to be restricted to the introduction of water, but it is also his duty, as well as that of every sanitarian, to check the widespread prodigality of its use. The average consumption of water in England is from 25 to 30 gallons per head per day, but in Scotland, where the people are credited with being more frugal, it is double that quantity. In the United States generally it is about four times as much. If supplies were unlimited, and money available for public works inexhaustible, little need be said, but neither is the case, and it cannot be too definitely fixed in the minds of the people that to waste water is to waste money.

In the purification of sewage change and uncertainty have played a conspicuous part during the past half century. In conjunction with the chemist and biologist the engineer has had many problems to consider, not always with satisfactory results. During the first moiety of the last half century engineers advocated irrigation as the only reliable method of disposition of sewage without detriment to a stream. Chemists generally advocated a chemical process, and they took out no fewer than 500 patents for that purpose. After a long fight the Royal Commission of 1885 pronounced strongly in favour of land irrigation as the only reliable method. This decision ceased to be correct when the biologist showed another way of efficiently purifying sewage, and for twenty years we have been constructing bacteria beds. How do we stand to-day? Mr. A. J. Martin, speaking at Exeter last summer, summed up the present position by saying:—"We can produce with certainty an effluent which is inoffensive and chemically stable. The putrescible solids in sewage can be converted, either by aerobic or by anaerobic methods, into a much smaller volume of inoffensive residuum. This effluent can be completely sterilised, although not without risk of upsetting the balance of life in the river into which it is discharged."

In order to arrive at these general dicta we have travelled many a controversial path. The conflicts have been severe, but none of the combatants have been mortally wounded. Throughout the controversies two facts have stood out clear and undisputed—namely, that satisfactory effluents could be produced by treating sewage on suitable land and by treating it on well-constructed bacteria beds. In both cases the purification process is due to a combination of biological, chemical, and physical laws which hall-mark it, so to speak, with Nature's own stamp. The admission of these facts proves that differences were not fundamental in character, and the all but universal adherence to them now shows, not that further investigation and test are unnecessary, but that there is a good starting-point from which definite scientific research may begin. At one of our sessional meetings last year Mr. Martin pleaded for the establishment of a Government department to undertake such work, and I venture to say that there is no more urgently required department. This Institute should add the full weight of its authority to the advocacy of this work, as well as to the establishment of the central authority proposed by the Royal Commission on Sewage Disposal.

There should be no assumption that because the Royal Commission have proposed that a central authority should be set up Parliament will agree to it. The very fact that money will be required to equip such a department, and that the appointment of more Government officers is certain to be resented by a section of the Legislature, is the very reason why the Institute should be vigilant and insistent. I am sure no one interested in the purification of sewage will misunderstand the proposal to establish a department which, in addition to performing the function allocated to it by the Royal Commission, should, as part of its usual and permanent routine, conduct scientific investigations in every phase of the work. This branch of work should be urged upon the Government; but if failure has to be admitted that is no reason for relaxing every effort to induce Parliament to approve the proposal to establish a central authority. If that is conceded it is, in my view, only a question of time when the central authority will find it necessary to equip a research department. The present anomalous state of things is intolerable, whether due to the fault of the statute or to its faulty administration, and should be remedied. The bare idea of compelling a township like Llanwrst to purify its sewage completely, although the effluent must be discharged into a river more than 2,000 times its volume, shows that the wealth of the country is not husbanded properly. There is nothing so objectionable as a slavish obedience to the letter of the law when the spirit is not even remotely apprehended.

The great work of purifying the rivers of

England is necessarily costly, and the nearer I come to understanding the problem the more am I convinced that we need an authority like the central authority to guide local bodies, as much as we need one to see that they obey the law. Cast-iron rules are applicable to some things—for instance, the breaking of other people's windows—but they are inapplicable to standards of sewage effluents. In my view it is nearly as bad to waste money upon perfect sewage effluents where that is not required as it is to neglect the work of purification altogether where it is required.

It is the creation of such an authority that the Royal Commission on Sewage Disposal recommend, and which, without unduly anticipating the Report of the municipal representatives appointed by the Association of Municipal Corporations, appeals to them as being the only workable alternative to setting up a standard of purification by Act of Parliament.

May I suggest that the incidence of taxation for maintaining clean rivers should not be beyond the cognisance of such an authority? If each sewage effluent is to be made to suit the needs of each stream for the benefit of the community at large, should not the community share part of the burden?

It may be taken for granted that riparian owners would object to be rated for the elimination of impurities for which they disclaim all responsibility. It should be borne in mind, however, that some rivers would have been available as sources of water supply had it not been for the ramification of land drains, which, in these modern times, convey soakage from highly manured arable land direct to the nearest stream. The case of the city of Aberdeen comes to my mind. There the authorities propose to abandon an excellent water supply derived from the River Dee and introduced one estimated to cost upwards of £1,000,000 in order to avoid the risk of impounding tainted water.

Another sewage problem which has not yet been satisfactorily solved is that which relates to aerial nuisance. It is a problem which affects large communities more than small ones, as, to some extent, it is a question of atmospheric dilution. One of the schemes for treating the sewage of New York involved the construction of 1,000 acres of bacteria beds at one place, and in commenting upon this proposition I ventured to say: "I have grave doubts about the wisdom of placing so vast an area of bacteria beds so near to an industrial centre as they would be on Barren Island. In contemplating such a scheme one should take into account the after effects of the evaporation of so much foul liquid as there must necessarily be from such an area of filters. In 1911, when the summer weather in England was warmer than usual, there were complaints of smell nuisance from a small installation at Hanley, where the sewage is of about the same strength as the average American sewage, and where it is distributed over rectangular percolating beds by mechanical distributors moving backwards and forwards. Complaints were also made by residents near the 30-acre installation at Birmingham, where strong sewage is sprayed over the beds by fixed nozzles. The chief lesson to be learned from the 1911 experience is that an increase of flies is to be looked for in the neighbourhood of bacteria beds in hot weather, and that objectionable smell adjacent to them is more pronounced during prolonged hot weather than at other times—*e.g.*, seasons like the average English summer, when the temperature rarely exceeds 65 deg. Fahr. in the shade. But a much more serious drawback to a great area of bacteria beds during spells of prolonged hot weather is the formation of vapour "clouds," due to the evaporation of sewage. These imperceptible clouds appear to form over the beds in quiet weather. They rise to some distance above the earth, and at sundown, when the earth begins to cool, they return, not alone as refreshing dew, but with offensive odour. If this occurred only in the vicinity of the bacteria beds, where the land is generally less valuable than at some distance, it would not be so serious in its consequences; but it generally occurs at some distance from the bacteria beds, the direction and distance depending upon the tendency and velocity of the wind."

Of course, it is only the malodorous element in sewage that makes this phenomenon noticeable; evaporation from clean water would act precisely in a similar manner, but it would manifest itself in welcome dew on the grass. This led me to adopt at Birmingham the use of hypochloride of calcium with excellent results, but the cost would be a serious matter where 700,000,000 gallons had to be treated each day; indeed, the bare probability of hypochloride of either calcium or sodium—and the latter is even more effective—having to be used frequently would be sufficient in itself to retard the adoption of a scheme which would be many times as large as anything now in existence.

Mr. Scott Moncrieff, in a speech some years ago, asked whether the great cost entailed in the purification of sewage really paid a community. If there were only a limited definite sum availabe for the promotion of public health in this country, I would say, without hesitation, that there are other works which would probably produce greater benefit to a greater number than purifying our rivers; but in England there is plenty of money to pay for the maintenance of reasonably clean rivers and the conservation of those delightful rural districts which no patriot would willingly see permanently injured. It is as essential for a local authority to maintain a clean town or district as it is for an individual to keep a clean home. Cleanliness is one of the chief characteristics of civilisation—not the surface cleaning merely, as I have seen it in many towns abroad, and some, I am sorry to say, at home, but that cleanliness which is dear to the heart of a medical officer of health. The cholera plague at Hamburg a generation ago, and the more recent epidemics of typhoid fever at Maidstone and Lincoln, directed the minds of the least thoughtful of the community to the need for the absolute purity of the water supply, and indirectly to the disposal of sewage. In England, during the last generation, both subjects have received conspicuous attention, and we have to some extent merited such encomiums as Dr. W. Roth, of Saxony, paid us when he said: "It is unquestionable that in the whole field of hygiene England has been foremost in practical work, thanks to the great number of eminent men who have devoted their powers to the subject." But I am seriously doubtful whether we are not at this moment prone to rest on our oars. Nothing succeeds like success; but if we rest content with having been successful once we live in a fool's paradise. If we cannot individually prosecute scientific research, let us unitedly and wholeheartedly call upon the Government to establish a research laboratory which will take up or initiate subjects of investigation on our behalf.

I have been engaged in many inquiries as to the best method of disposing of sewage, but I frankly own that when I was engaged last year on the problem of how best to sewer New York and treat the sewage of that great population I found a wealth of minute scientific and practical investigations already prepared by the Metropolitan Sewerage Commission out of all proportion to anything ever prepared for a similar purpose in this country, and it made me feel that if the President's methods were typical of American practice we are far behind in this respect. No question could be put in relation to facts, or line of investigation suggested, which Dr. Soper or his officers had not anticipated, and that, too, in the most complete and exhaustive manner.

The sludge question, for example, has not been exhaustively studied. It is a very complex substance, which in one place may yield copper and in another grease in such quantity to pay for recovery, and it may be that in every case sufficient nitrogen can be obtained from it in quantities to be remunerative. As it is, we are usually content to get rid of it without creating nuisance, in some cases by pressing and burial, and others by pressing and burning, and burial alone, at coast towns by disposal at sea, and in at least one case in this country—Birmingham—and several in Germany, by septicising and air drying. All the processes are efficient as a means of getting rid of sludge without nuisance. From a hygienic point of view dumping at sea is unrivalled; but this method is rarely available, and I doubt if it is always wise.

Are we sanitary engineers doing our part as well as we might? Are we satisfied to rest content with converting a noxious product like sludge into an innocuous substance, knowing that it contains a nitrogenous base which might be used as a fertiliser? In England there is an upward tendency in manure prices. Until recently London alone provided farmers with enormous quantities of stable dung; now that the motor is fast driving the horse off the streets there is but little town manure available for the farmer. If this is true of London to-day it will be true of the provinces to-morrow, and it accentuates the need for the conservation of the fixed nitrogen in sewage sludge, so essential to the efficient cultivation of the soil.

It has been felt for some years past that there is profit for someone who could invent a process to utilise the manurial value of sludge, but the difficulty has been to get a plant capable of converting wet sludge into a dry powder quickly, efficiently, and economically. I have examined machines at work in England, Scotland, Germany, and Belgium without being satisfied with the results.

Two years ago my attention was directed to the Dickson process as it was worked at the Dublin sewage outfall works. It was claimed for this process that the introduction of brewery yeast into the sludge promoted rapid fermentation and rendered the sludge easily separated from the water. I was induced last autumn to go to Dublin to see the process, when I formed the opinion that the patentees were justified in claiming that they are able to make quickly and economically a fertiliser of which sewage sludge forms the base. At my instigation the Birmingham Drainage Board sent Mr. L. F. Mountford, Assoc.M.Inst.C.E., to Dublin to make a fortnight's careful test of the process and the plant, and Mr. Mountford's report fully confirms me in the opinion which I formed as the result of personal observation."

NOTES.

Water-Softeners. It is becoming more and more usual to find a water-softener installed in country houses, and it is therefore of interest to note that two of the best-known makers of these appliances have decided to combine their efforts. Messrs. Lassen & Hjort, working by means of lime and soda, and Messrs. Water-Softeners, Ltd., whose "Permutit" regenerative process is fairly new, have found that these two methods are, in a large number of cases, complements one of the other. In some instances perfect results could not be obtained by either separately, but by combining certain features of each an ideal treatment is claimed to have been reached. As a natural consequence, the two firms have joined interests and have formed a new company, under the title of "United Water-Softeners, Ltd."

Drainage and Disposal of Waste Matters at Public Elementary Schools. It is generally recognised nowadays—or, in any case, it should be so—that defective drainage systems cannot be tolerated in connection with schools. Of course, they ought not to occur anywhere, but it behoves us to be particularly careful where children are concerned. With a view to that, no doubt, the Local Government Board have just issued a Memorandum on the arrangements for the disposal of drainage and waste matters at public elementary schools, for which loans under the Board's sanction are required. Difficulties arise principally, of course, in country places where either sewers or water services, or both, are not available; and it is with such cases that this Memorandum is chiefly concerned. The fact that it cannot be claimed that any new principles are laid down does not detract from the value of this reminder to local educational authorities and their advisers.

The Board quite realise that no hard-and-fast rules can be laid down serving every case. One of the most important clauses states that under no conditions can disposal of sewage by subsoil irrigation or any system of leakage into the subsoil or the discharge into a ditch or watercourse of untreated sewage be regarded as satisfactory. They also point out very wisely that the rain-water should, where no sewer and water services are available, not be connected to the main drainage, but collected separately. Useful information is given governing filtering-beds. Land for irrigation should have an adequate area and suitable soil, and should be at a sufficient distance from any inhabited building or sources of water supply so as not to create a nuisance or pollute the water. Special attention is drawn to the construction and management of earth closets, together with particulars of a type that has been found to work satisfactorily.

THE BUILDING TRADE.

COMBINATION *v.* COMPETITION.

A NOTE of alarm has been sounded in the daily Press anent the imminence of combines in the building trade and at the prospect there is of these coalescing into a super-combine.

The moment therefore seems opportune to survey the relationship which exists between combination and competition, so that thought may be clarified and freed from prejudice in regard to these two essential factors of human relationships.

Competition in its primitive form is the struggle for existence waged by beings either against the forces of Nature, in the endeavour to wring from her the means of subsistence, or waged against other beings in an endeavour to defend acquired subsistence or the means thereof against those who seek to wrest them away, or in the endeavour to annex fresh sources of subsistence, waged by beings from one locality against beings of another.

This kind of competition is a ruthless, cruel business, as all history shows, and, while in the lower animal world it has remained so, among mankind there has always been an effort made to restrict the excesses of competition by combined defensive measures of one kind or another. In a sense, therefore, the fruits of competition are combines as surely as the fruits of apple-trees are apples, and, further, it can be shown that combines in their turn beget competition.

The Roman Empire, the modern German Empire, and the British Empire are political examples of huge combines which grew out of keen competition for places in the sun.

In the commercial world the guild systems of the Middle Ages represented a high degree of combination expressly designed to regulate the commercial and trading competition of that time. They appear to have answered their purpose well until changes occurred in their environment to which they proved unable to adapt themselves, and so they perished and were succeeded by an age of unrestricted competition, which is changing again now under our very eyes into an age of combination for the regulation of the evils which are resulting and have resulted from free competition.

The first class to suffer under free competition was the working class—that class realised that it must combine or sink into serfdom. The result was trade unionism—a huge combine designed to limit, and as far as possible nullify, competition in price; to control the conditions under which, as a class, it will sell its services, and to raise the price of such services; to assert its right, as a class, to refuse its services if those conditions are not complied with; to refuse to consort with or work alongside of men who do not belong to the combine, and to prevent non-members from deriving the benefits of the combination.

In principle it does not appear to differ from those commercial combines of which it is complained that their object is to raise and keep up the price to the buyer of goods made and supplied by its members, to cut off the supplies of those who do not belong to the combine, and to control the sources of supply of the goods produced or sold by it.

It is, however, generally admitted that trade unionism is necessary and beneficial in the main; it is recognised by the State, and its efforts to ameliorate the conditions of life for the working classes have been supplemented by much legislation in the way of Factory Acts, Compensation Acts, Insurance Acts, Old-Age Pensions, and the like. This is because the nation, as a whole, recognises that, "Ill fares the land, to hastening ills a prey, where wealth accumulates but men decay."

Now, what is true of the working classes may be true of the middle classes, who are mainly engaged in trade and commerce, and therefore before condemning commercial combines it may be as well to see whether there is not some justification for them also.

The idea underlying competition in commercial matters is that it evokes the greatest effort on the part of the competitors to produce and sell cheaply, that it promotes efficiency and enterprise. Within limits this is true. For example, when the modern age came in with its new appliances of steam, machinery, electricity, and the like, it found an environment wherein were vast regions of country, like the United States and Africa, and, in a lesser degree, even of Europe, which needed development and afforded enormous opportunities for enterprise; there was a field of endeavour open to all, and it was taken advantage of.

Now, that field has been pre-empted and developed, and, as a result, competition becomes ever keener and closer; price rules everything, quality suffers or profits have to disappear; the contractor fears to increase wages on the one hand, and must cut his own prices to vanishing-point on the other; the merchant and manufacturer find the sources of supply held against them by landowners, who exact an increasing toll in rent or royalties; the selling competition of their fellows makes it ever harder to secure a margin of profit for themselves; the cost of marketing their products forms an increasing percentage of the total cost of their goods; taxation and rating is always on the increase. So the time has arrived when the pressure of these things has become unbearable by individuals, and in self-defence producers are forced into associations for mutual protection. The basis of these associations is the solidarity of the industries they represent, just as the basis of trade unionism is the solidarity of the wage-earning class, and the primary intention in the former case is to ensure a living profit on commercial transactions just as in the latter case it is to secure a living wage.

It is hard to see how any serious objection to such intentions can be entertained or justified. Consumers have no more right to obtain goods at prices which do not yield a fair return to the merchant, manufacturer, or contractor than these have to obtain their manual labour at a rate which does not afford to the workman and his family a subsistence and something more; neither do consumers expect it. Unfortunately consumers have no means of judging whether prices are sufficient to yield these things or not; they can only test quotations and take what seems to them the best value for their money; it devolves therefore upon the producers to so regulate those prices that they will be properly remunerated for their trouble and outlay; the bankruptcy laws are there to penalise them if they do not.

(To be continued.)

THE STATE OF THE BUILDING TRADE.

WE take the following, by Mr. J. J. Jarvis, Managing Director of Messrs. J. Jarvis & Sons, Ltd., Hackney-road, London, N.E., and Director of the Imperial Property Investment Company, Ltd., Basinghall-street, E.C., from the *Annual Trade Review of the Chamber of Commerce Journal*:—

"Some improvement in the building trade is to be recorded during the year that has just closed. It is, however, but fair to state that such improvement is only comparable with a long series of "lean" years. The "trade boom" has given some impetus to manufacturing requirements, and this, in itself, has helped to reduce the percentage of unemployment in the ranks of both men and masters. But it is useless to be blind to the fact that the conditions of the trade generally leave much to be desired.

On the contracting side competition is still of the fiercest. Ordinary work that everyone can do is still taken at prices that can leave no possible margin of profit if specifications be honestly adhered to. The result is seen each month in the list of contractors who are forced by circumstances to give up the unequal contest. Unfortunately the number of firms who have borne honoured names in the trade for many years and have yet come to grief is all too many in the year under discussion. Not that the keenness of competition has been alone responsible, for rises in the cost of both labour and materials have badly hit many firms with running contracts, whilst the difficulty of exactly gauging the extent of these advances has made accurate tendering exceptionally difficult.

On the speculative side little can be said, for it has almost ceased to exist. There are many of us who in days gone by have spoken more disrespectfully of the "jerry builder" (as we have been pleased to call him) than circumstances have perhaps warranted. For events are proving that he supplied in many places a need for cheap houses. The result of this stoppage of small house-building is already being seriously felt, and in the new year we are destined to hear much more on this subject. Instead of empty houses, the existence of which we were wont to deplore, we find some of the meanest property in our large towns commanding rents considerably higher than ever before, whilst on the outskirts it is often impossible to find suitable residences for the artisan class at any price at all.

It may astonish the reader that with such a demand there are not a whole army of builders prepared to arise at once and build. But there are at least four very excellent reasons why this is unlikely to occur. First the impossibility of procuring mortgages. Nowadays practically no one will lend money on mortgage, so that this alone is an effectual bar to a revival in this branch of the trade.

But supposing this difficulty could be exceptionally overcome, there follows a second reason in the abnormally high cost of both labour and materials, which must result in the new houses costing far more than similar buildings already in existence. The rise in the price of labour is consequent upon arrangements made between the respective employers and their workmen, against which the writer has nothing to say. That these adjustments have been made with the minimum of labour disturbances is greatly to the credit of both parties, and speaks volumes for the good feeling that it is hoped may long continue to exist between them. The higher price of materials has certainly not been justified by the demand, except in exceptional cases. It is to be deplored that almost every commodity is now regulated by trusts, rings, or combines. Legitimate competition has been largely killed and regular meetings of each industry are held whereat meet the various Ali Babas and their *confrères* to see how much more can be squeezed from the long-suffering consumer. Whilst it must be admitted that a continuance of bad trade and severe competition had brought many industries to the verge of bankruptcy, it is a matter for doubt whether the present entire reversal of conditions may not prove even worse for trade in the long run. Fortunately there are signs that this artificial inflation of prices will bring about its own undoing by inviting foreign competition, encouraging substitutes, and restricting consumption, for in more than one instance already these schemes show signs of boiling over. But it is useless to ignore the fact that this all-round increase in the cost of both labour and materials has made it more difficult for the speculator to build houses at a price which would find ready purchasers under normal conditions, to say nothing of such times as these.

The third reason is the uncertainty of the incidence of the new increment duty, which, despite assurances to the contrary, has resulted in a number of cases in a heavy tax on the builder's profits.

The fourth reason is that, even if these houses were built, purchasers are almost as rare as mortgagees. The fact is, the British public will have nothing to do with the property market.

The prospects for 1914 should, by every natural law, be brimful of hope for the building trade. There has been such marked activity in almost every other industry that there must be considerable sums awaiting immediate investment. Not many years ago much of this money would have found its way into large building schemes and for the erection of a still greater number of town and country houses for those fortunate merchants whose time and capital have been so profitably employed. But he would be indeed an optimist who would venture to predict anything so desirable in the year that is before us. Much of the money that should have found its way into the pockets of the builder and his workmen will go abroad for investment, and our emigration returns clearly indicate that the cream of our artisan class is following capital out of the country, to lands where they can sell their labour on more profitable terms. In spite of these restricted conditions there is no reason, however, to apprehend that the new year will hold any more unfavourable conditions than the old. On the contrary, labour troubles are improbable, the prices of materials are likely to be downward rather than otherwise, and sooner or later the public will come back to the property market, especially if there should fortunately arise any tangible reasons for a return of confidence."

THE LONDON MASTER BUILDERS' ASSOCIATION: MONTHLY REPORT.

THE ordinary meeting of the Council was held on Thursday, the 15th inst., at the offices of the Association, Koh-i-Noor House, Kingsway, W.C., the President, Mr. Walter Lawrence, jun., in the chair, and there was a large attendance of members.

The Reports of the Special Council and Committee meetings, whereat particular attention was devoted to the procedure to be adopted in carrying out the policy authorised at the general meeting on the 15th ult., and instructions for the issue of the posters and circulars to all members in order that the information therein contained might be conveyed to all workmen in their employ a week before the plan adopted would come into operation, were read and adopted.

New members were elected, and further applications for membership received.

In reference to the preceding paragraph, attention may be called to an allusion in the Preface to the London Master Builders' Association's *Handbook* for the present year, which says:—

"Very serious issues are in the balance, and by withholding moral and valuable support during a crisis that may prove to be without parallel in the history of the industry, non-contributory employers are incurring a grave moral responsibility, since obviously they are imperilling not only their own prospects, but the well-being of employers generally."

Correspondence and trade matters of interest were considered and instructions issued.

The annual dinner of the Association will take place on the 18th prox.

WAGES IN THE BUILDING TRADE.

BARROW-IN-FURNESS.—On and after February 2 the painters in this district will receive an advance in wages from 8½d. in summer and 9d. in winter to 9½d. all the year round.

BIRMINGHAM.—The master heating and domestic engineers have received an application from the district branch of the operatives' union for an advance in wages of 1½d. per hour (8½d. to 10d.). The employers have replied that they would give the matter further consideration when they are satisfied that all the men who are engaged in this work at the present time are receiving the standard rate of wages all round, as they understand that qualified fitters are working for local houses in several cases at less than the current standard rate.

LONDON.—The London Master Builders' Association has issued the following notice to the workmen employed by its members:—

The London Master Builders' Association, to prevent misunderstanding, desires to make clear the reason for the present unfortunate friction between the Employers and Trade Societies.

The recently arranged Working Rule Agreements were formulated in conference with representatives of the several Trade Societies, and, as the Council of this Association understood, were signed only after a ballot of the Members of the several Trade Societies concerned had been taken authorising such signature.

These Agreements provide that no exception shall be taken to the employment or non-employment of a workman on the ground that he is or is not a Member of a Trade Society, and also provide that to avoid stoppage of work any dispute shall be brought before a Conciliation Board for decision.

No less than twenty different strikes against non-union labour have occurred since May 20 last, and two exist at present.

A conference between the Council of this Association and Representatives of Trade Societies was held on December 23 last for the purpose of discussing the situation thus created. In the absence of any suggestion for an immediate remedy from the Representatives of the Trade Societies present, the following proposals were submitted by the Council:—

1. The return to work of all men to jobs where strikes exist immediately after the holidays.

2. That a Guarantee Trust Fund should be formed by deposits by both sides to be available for the purpose of paying penalties for strikes or lock-outs in violation of the Working Rules.

3. That a statement in writing be sent to this Association that your Society deprecates the strikes without the matters in dispute being brought before the Conciliation Board, and that you will undertake to penalise your individual members in case of the non-observance of the Rules.

4. That an undertaking be given that no attempt will be made on any of the jobs of Members of this Association to carry out Card Inspection.

5. That a reply must be in the hands of this Association on or before January 5, 1914, stating as to whether or not your Executive Committee accepts the principle involved in the foregoing proposals.

Proposal No. 1 not having been complied with, and no satisfactory replies having been received in regard to the others, the Association is compelled to adopt other measures in the interest of its Members.

The Societies' Officials allege that these strikes have not been authorised by them, and that they are unable to control their individual Members in the matter.

Notice, therefore, has been given to the following trade organisations—Carpenters and Joiners, Plasterers, Stonemasons, Bricklayers, Builders' Labourers—that the Employers can no longer hold themselves bound to the before-mentioned agreements, and that they do not see their way to renew them without some substantial guarantee being provided for their honourable observance.

The Association considers that the only course open to the Employers is to deal with their workmen as individuals, and that their employment must be one involving individual responsibility.

It is therefore decided that it shall be a condition of employment with all workmen desiring to work on and after Monday, January 26, 1914 (except Mill Sawyers and Wood-cutting Machinists, Smiths and Fitters, Plumbers, and Crane Drivers, with whose Societies Working Rule Agreements are still in force), that they shall sign the following undertaking:—

..... 1914.

To Messrs. .....

.....

"I agree, if employed by you, to peacefully work with my fellow-employees (engaged either in your direct employment or in that of any sub-contractor) whether they are members of a Trade Society or not, and I agree that I will not quit your employment because any of my fellow-employees is or is not a member of any Trade Society; and I also agree that if I commit any breach of this agreement I shall be subject to a fine of Twenty Shillings, and I agree that the amount of such fine may be deducted from any wages which may be due to me."

Witness ..... Name .....

..... Address .....

All workmen employed on Saturday, January 24, 1914 (with the exceptions above mentioned), will be required to sign the above undertaking in the presence of the Foreman or Timekeeper at or before 11 a.m. on that day, and any workman failing to do this will be deemed to have given an hour's notice to terminate his engagement at 12 o'clock noon on that day.

Sufficient copies of this Undertaking will be available at all shops or jobs on Saturday, January 24, 1914, so that signing on can take place at or before 11 a.m. on that day. Each workman signing may receive a copy of the Undertaking.

By order of
THE LONDON MASTER BUILDERS' ASSOCIATION.
S. B. DEPREE, *Secretary*.
Koh-i-Noor House, Kingsway, W.C.
January 15, 1914.

At a meeting of the Managing Committee of the unions affected by the above notice the following manifesto was drawn up:—"London building workers, do not sign any document that the employers or their representatives request of you. Also, do not leave your work unless discharged." The manifesto was signed by the district secretaries of the various unions, and it is regarded as likely that the bulk of the men concerned will refuse to sign the undertaking.

PRESTON.—The operative heating and domestic engineers in this district have given notice for an increase in wages of 1d. per hour. The employers offer an increase of ½d. per hour from January 19, 1914, and this has been duly submitted to the operatives, who, however, adhere to their application for 1d. advance. The matter will be further considered, but at present the employers are not prepared to concede the difference.

PROPOSED NEW BUILDINGS AND OTHER WORKS.*

IN these lists care is taken to ensure the accuracy of the information given, but it may occasionally happen that, owing to building owners taking the responsibility of commencing work before plans are finally approved by the local authorities, "proposed" works, at the time of publication, have been actually commenced. Abbreviations:—T.C. for Town Council; U.D.C. for Urban District Council; R.D.C. for Rural District Council; E.C. for Education Committee; L.G.B. for Local Government Board; B.G. for Board of Guardians; L.C.C. for London County Council; B.C. for Borough Council; and P.C. for Parish Council.

ATHERSTONE.—Plans passed by R.D.C. for alterations for Mr. George Eaton, Long-street; four cottages, Boot-hill, Grendon, for Mr. Jones.

BASINGSTOKE.—Plans passed:—House in Hackwood-road for Mr. W. Higgs, and of two houses in the same road for Messrs. Musselwhite & Son. The T.C. have decided to purchase land and build fifty cottages.

BENTLEY.—The Plans Committee of the U.D.C. are getting out a scheme for housing.

BEXHILL.—Plans passed by T.C.:—Shop and flat, St. Leonards-road, Mr. P. D. Stonham (for Mr. A. L. Franklin); additions to Buckhurst-road Convent School, Mr. J. C. D. Hicks (for the Mother Superior); additions to Calstock, Collington-avenue, Mr. G. E. Maynard.

BIGGLESWADE.—The R.D.C. have decided to purchase land at Beeston and Sandy, and have instructed Messrs. Homer & Lucas, architects, of Evelyn House, Oxford-street, W., to prepare plans for the erection of a suitable number of cottages on each piece of land.

BIRMINGHAM.—The design of Mr. E. F. Reynolds, architect, of Birmingham, has been selected for the new church of St. Germain.

BLACKBURN.—Plans approved by R.D.C. of a house proposed to be erected in Factory-road, Billington, for Mrs. Exton.

BOLTON.—Plans were approved of Messrs. Okell & Siddell for billiard-hall in Shepherd Cross-street, and of Messrs. Barlow & Jones for addition to storage at Prospect Mill.

BOURNE.—A loan of £915 for housing by the U.D.C. has been sanctioned by the L.G.B.

BOURNEMOUTH.—The L.G.B. has held an inquiry into the application of the T.C. to borrow £5,000 for the laying-out of the new North Cemetery, in the parish of Holdenhurst. The scheme includes the building of a lodge and shelter.

BRADFORD.—The Libraries, Art Gallery, and Museums Committee have approved of plans for the erection, at an estimated cost of £6,360, of a branch library and cottage baths on land belonging to the Corporation at Tennyson-place and Undercliffe-street.

BRIGG.—The B.G. have ordered that plans for the construction of a new workhouse infirmary be sent to the L.G.B. for approval.

CAMBORNE.—Plans passed:—Five-roomed house at Treswithian for Mr. W. H. V. Harvey, and a five-roomed house at Condurrow-road for Mr. E. M. Bingley.

CHATHAM.—Plans passed by T.C.:—Alterations at the "Two Brothers," Military-road, for Messrs. Ind, Coope, & Co., Ltd.; alterations and additions to 25, Military-road, for Mr. F. J. Sullivan; house in Kingswood avenue for Miss Nichol; conversion of premises, 14, Fort Pitt-street, for Mr. S. E. Bessent; and conversion of a chapel on the Brook into printing works for the Rev. Hon. R. J. Yarde-Buller.

CHIPPING NORTON.—Plans are before the T.C. for alterations at 1, Market-place, for Messrs. Walker & Atkinson.

CHRISTCHURCH.—Plans passed by T.C. for additions to Prospect Villa, Mudeford, for Mr. Ricardo, and additions to house, Grove-lane, deposited by Mr. A. G. White.

CLACTON.—Plans passed by T.C.:—House in Lancaster-gardens for Mr. Giddon; additions to shop and new studio in Freeland-road for Mr. Hoffman; motor garage in St. Osyth-road for Swiftsure Motors, Ltd.; house in Connaught-gardens for Mr. S. G. Clark; motor garage in Uplands-road for Mrs. Ritchie.

COATBRIDGE.—The Dean of Guild Court has passed plans of a tuberculosis hospital on the site of the present fever hospital at Coathill. The new building will contain twenty-four beds, with administrative block and dispensary, at an estimated cost of £2,105. Plans were also passed for the erection of a double villa in Drumpellier-street for Messrs. T. Bryson and A. S. Mills at an estimated cost of £1,000.

DARLINGTON.—Plans passed by T.C.:—Two houses in Tower-road for Messrs. R. Blackett & Son; alterations and additions to house in Elton-parade for Mr. G. W. Davies; alterations to malting premises in D'Anson-street for Messrs. Evans & Son; a smith's and fettling shop in Kinross-street for the North of England School Furnishing Company; two houses in Brinkburn-road for Mr. J. E. Chilton; and two houses in Tower-road for Mr. A. Stobart.

EASSINGTON.—The L.G.B. have held an inquiry into the application of the R.D.C. for sanction to borrow £23,200 for the construction of a sewer from Haswell to the sea, a distance of about seven miles.

EAST HAM.—Plans submitted by Mr. J. M. H. Gladwell for a picture theatre in High-street South have been approved.

EDINBURGH.—The City Architect has prepared plans for a new market on the site of the old gasworks, which will be submitted to those interested in the market. Should the traders be got out of the Waverley Market, the Corporation will be then free to develop that building on its valuable site alongside Princes-street as a winter garden or in any other manner likely to be of public advantage. Warrants granted by the Dean of Guild Court:—John Gardiner, alterations, 6, Jeffrey-street, and 5, 7, and 9, Cranston-street; North British Railway Company, bridge at Joppa Station and renew part of bridge at St. Margaret's; Thomas Arthur Nelson and another, addition and alterations, 61, Dalkeith-road.

ESHER.—Plans passed by U.D.C.:—Motor garage and alterations at Portsmouth-road, for Mr. Welland; and for an extension of the dining-hall and paper store at the Royal Mills, Esher.

FOLESHILL.—Plans passed by R.D.C.:—Rebuilding of Prince of Wales' Inn, Bulkington-lane, Bedworth, for Messrs. T. Cooper & Co.; additions to Craven Arms, Walsgrave-on-Sowe, for Messrs. Phillips & Marriott, Ltd.

GALASHIELS.—The T.C. are submitting sketch plans for the reconstruction of the municipal offices to the Secretary of Scotland.

GLASGOW.—The Dean of Guild Court has granted the following warrants:—North British Steel Diesel Engine Works, Ltd., London, and 83, Bothwell-street, Glasgow, to erect a smithy, power-house, and boiler-house at Jordanvale, Whiteinch; the School Board of Glasgow, to erect temporary classrooms in Hathaway-street; the Corporation of Glasgow, to erect a tramway shelter at Shields-road; Mr. J. W. Gordon Oswald, Scotstoun, to form roads or streets, with the necessary sewers, on ground off Crow-road, Anniesland; Elizabeth Bellord, Everton Valley, Liverpool, and others, to make additions to the Training College in Victoria-crescent, Glasgow.

* See also our list of Competitions, Contracts, etc., on page 118.

RATES OF WAGES IN THE BUILDING TRADE.

THE following are the present rates of wages in the Building Trade in the principal towns of England and Wales. It must be understood that, while every endeavour is made to ensure accuracy, we cannot be responsible for errors that *may* occur:—

——	Masons.	Brick-layers.	Car-penters, Joiners.	Plas-terers.	Slaters.	Plumb-ers.	Painters.	Masons' La-bourers.	Brick-layers' La-bourers.	Plas-terers' La-bourers.
	d.	d.	d.	d.	d.	d.	d.	d.	d.	d.
Newcastle	10	10	10	10	9½	10	9	6½	6½	6½
Sunderland	9½	10	10	9½	9½	9	9	6½	6½	6½
Darlington	9	9½	9	9½	9½	9	7½	6½	6½	6½
Stockton-on-Tees	9	10	9½	10	9½	9	8½	7	7	7½
Bradford	9½	9½	9	9	9½	10	8½	6½	6½	6½
Halifax	9½	9	8½	8½	8½	9	8½	6½	6½	6½
Hull	9½	9½	9½	9½	9½	9½	8½	7	7	7
Leeds	10	10	9½	9½	9	9½	8	7	7	7
Sheffield	10	9½	9½	9½	9½	9½	8½	6½	6½	6½
York	9	9½	8½	9½	9½	8½	7½	6½	6½	6½
London	11½	11½	11½	11½	—	1s.	9	7½	7½	7½
Brighton	8-9	8	8	—	—	—	—	—	—	—
Portsmouth	9	9	9	9	—	8	7½	6½	6½	6½
Southampton	8½	9½	9½	8	—	9½	8½	6½	6½	6½
Maidstone	9	9	9	—	—	9	7½	5½	5½	5½
Bristol	9½	9½	9½	9½	—	9½	9	6½	6½	6½
Plymouth	9	9	9	9	—	9	7½	6	6	6
Bath	7½	7½	8	8	7½	7½	7	5-5½	5-5½	5-5½
Cheltenham	8½	8½	8½	8½	—	8½	7½	5½	5½	5½
Exeter	8	8	7½	7½	7½	7½	6½	5	5	5
Gloucester	7½	8½	8½	7½	7½	8½	7½	5½	5½	5½
Hereford	7½	8	7½	8	7½	7	6½	5	5	5
Stroud	7½	7½	7½	7½	7½	7½	7	5	5	5
Blackburn	10	10	9½	9	9½	9½	9½	6½	7	7
Bolton	10	10½	10	10½	9	10	9	—	—	—
Liverpool	11	11	11	10	10	10	9½	6½	6½	6½
Manchester	10	10½	10½	11	9	10	9½	6½	6½	7½
Oldham	10	10½	10	9½	9	10	9½	6	7	7½
Preston	9½	10	9½	9	8½	9	8½	5½	6	6
Birmingham	10	10	10	10½	9	10½	9	7	7	7
Derby	9½	9½	9	9	9	9	8	6	7	6½
Leicester	9½	9½	9½	10½	9	9½	8	7	7	7½
Nottingham	10	9½	9½	10	9	9½	9	7	7	7½
Norwich	8	8	8	8	8	8	6½	5	5	5
Cambridge	9	8½	8½	9	8	9	7	5½	5½	5½
Oxford	9	8	8½	8½	8	8½	7	6	6	6
Southend	9	9	9	9	Piece-work	9	7	6	6	6
St. Albans	9	9	9	10	8½	9	8	6	6	6
Grays	—	10	10	—	—	—	8½	7	7	7
Cardiff	9½	9½	9½	9½	9½	9½	8½	6½	6½	6½
Swansea	9	9	9	9	8½	9	8½	6	6	6
Newport	9	9	9	9	8½	8½	8½	6	6	6
Chatham	8	9	8½	9	9	8½	7	5½	5½	5½
Birkenhead	11	11	11	10½	10	10	9½	6½	6½	6½

The mason's rate given is for bankers; fixers usually ½d. per hour extra.

Greenock.—The T.C. have decided to proceed with a scheme for the erection of workmen's dwellings in Roxburgh-street at a capital expenditure of between £30,000 and £40,000. It is suggested that 135 houses should be built. They have also decided to apply to the Secretary for Scotland for permission to borrow £50,000 for an extension of the existing carbonising plant at Inchgreen Gas Works and for the erection of a new gas-holder and tank. The preliminary work has begun in connection with the extensions to the torpedo factory, which are to cost about £30,000.

Haddingtonshire.—The C.C. have adopted a scheme for the maintenance of the great post roads for five years, including the purchase of the necessary plant. The scheme involves an expenditure of £11,809 8s. 4d., towards which it is understood that the Road Board will make a grant estimated at £3,431 13s. 11d., and also give a grant of £6,931, free of interest. The District Road Surveyor has been instructed to prepare a formal scheme to be submitted to the Road Board.

Harpenden.—Addition to St. George School Chapel for the County Educational Public Schools Trust, Ltd.

Hartley Wintney.—Plans passed by R.D.C. of two cottages at Phœnix Green for Mr. P. Browning; of a cottage at Frogmore, Yateley, for Mr. Pain; and of a church at West Green.

Hendon.—The L.G.B. has sanctioned the borrowing by the U.D.C. of £23,769 for road improvements.

Hertford.—The County Surveyor has been instructed by the Herts E.C. to prepare plans, etc., for offices in Castle-street for submission to the C.C.

Hinckley.—The U.D.C. have instructed the Surveyor to prepare plans showing the number of workmen's dwellings which could be erected on the surplus land in Coventry-road and Rugby-road, the houses to be similar in plan to those recently erected.

Hitchin.—The R.D.C. have passed the plans of the new isolation hospital, consisting of two isolation blocks of twelve and four beds, an administrative block, and a laundry block, altered in accordance with the recommendations of the L.G.B. The probable cost of the building is placed at £6,001 for building and £1,540 for drainage, etc.

Irvine.—Plans passed by the Dean of Guild Court:—Irvine T.C., cot-houses at Newmoor Farm; Mr. David Johnston, fruit merchant, for cottage, stables, and store at Ballot-road; Christian Brethren, alterations in their hall in Waterside-street; Mr. James Anderson Connor, joiner and cabinetmaker, Bridgegate, shops in Bridgegate.

Keighley.—The T.C. have decided to erect a new shed and corrugated-iron building on land in Halifax-road for the housing of the trolley vehicles on the Ingrow and Lees route.

Kirkcaldy.—The School Board are considering plans for the erection of a new school at Dysart at a cost of £1,700.

Lanchester.—The B.G. have asked Mr. George T. Wilson, architect, of Blackhill, to prepare plans for the enlargement of the cottage homes by the addition of another block.

Leigh.—The T.C. have decided to spend £11,910 on extending the electricity undertaking, and also decided to apply for permission to borrow £11,420 for improvements at the Gas Works.

Linlithgowshire.—A special committee of the District Committee are proposing a scheme for a new supply of water to Linlithgow, Abercorn, Carriden, Blackness, and Muirhouses districts, at a cost not exceeding £30,500.

Liverpool.—The L.G.B. have held an inquiry with reference to an application by the T.C. for power to borrow £19,400 for the erection of a building for the accommodation of the departments of the city bacteriologist and city analyst.

Llandudno.—Plans are before the U.D.C. for a picture theatre on the site of the Royal Oak Hotel, Mostyn-street, a local syndicate propose to erect.

Llanelly.—The T.C. have approved plans submitted by Mr. T. Jones on behalf of Lady Howard for the laying-out of the estate on garden city lines. The plan provides for the laying-out of the Stepney Estate lands situated between Andrew-street and Felinfoel, known as the Llanerch and Penyfinglawdd districts. The area to be dealt with is 80 acres, and sites are provided for 664 houses, equal to about nine houses per acre, including road area, but not including the 4½ acres devoted to open spaces.

London County Council.—The Building Act Committee have consented to the following applications under the London Building Act:—Additions, etc., at Anti-Vivisection Hospital, Battersea, on application of Mr. E. T. Hall; building on 135 and 137, Larkhall-lane, Clapham, on application of Messrs. Reynolds & Hicks for Mr. E. Sweetland; and windows, etc., to thirty-two houses on north-west side and thirty-five houses on south-eastern side of Doddington-grove, Kensington, on the application of Messrs. Briant & Son for Messrs. D. H. Whitcher & Co.; erection of building on site of 2, Lancaster-place, Minories, on application of Mr. A. Gregory; alterations at the Coventry and Gambrinus Restaurant, Rupert-street, Soho, on the application of Messrs. Wratten & Godfrey; erection of eight blocks of workmen's dwellings by the Trustees of the Sutton Estate, on the application of Mr. E. C. P. Monson, Finsbury Pavement House, E.C.; for laying-out of new streets on the north side of Burntwood-lane, Wandsworth, on application of Mr. A. Dawkins for Mr. R. B. Mason; for laying-out of new streets from Green-lane to Footscray-road, Woolwich, on application of Messrs. Pepler & Allen for New Eltham Tenants, Ltd.; addition to 13, Cheyne-gardens, Chelsea, on application of Messrs. Lander, Bedells, & Crompton; for erection of six buildings to be used as working-class dwellings on a site in Kennington Park-road, Southwark, on the application of Messrs. Joseph & Smithem for the Guinness Trust; erection of arch across Kingly-street, Westminster, supporting a building of three stories in connection with the rebuilding of Messrs. Liberty & Co.'s premises, on the application of Mr. E. T. Hall; erection of eight houses in Baytree-road, Brixton, on the application of Messrs. E. Evans & Sons; addition to 93, Richmond-road, Dalston, for Mr. D. P. Hayworth; erection of shop front at Y.M.C.A. Central Building, Tottenham-court-road, on the application of Mr. D. H. Waddell for McCombie Bros., Ltd.; erection of St. Anselm's Church, Kennington-road, on the application of Messrs. Adshead & Ramsey; erection of building on the eastern side of Kirkdale, Lewisham, on the application of Mr. R. G. Bare; one-story shop at 8, Brownhill-road, Lewisham, on application of Mr. J. H. Beely for Mr. E. Levy; erection of porch in front of St James's Church, Elm-grove, Peckham, on application of Mr. W. Dean for the Rev. Father Pitts; re-erection of the Balfour Mews, Aldford-street, Mayfair, on the application of Messrs. Gilbert & Constanduros; bay windows, etc., to seventeen houses in Moyser-street, one house in Nimrod-road, and one house in Pendle-road, Streatham, on application of Mr. A. Dawkins for Messrs. B. T. & W. J. Flexman; porches to five houses in Gourock-road, Woolwich, on application of Messrs. Greig & Hutchings; bay windows, nineteen houses in Dunvegan-road, Woolwich, on application of Mr. J. J. Bassett, for Lord Rowallan; studio and addition at 34, Addison-road, Kensington, on application of Messrs. Collcutt, Harp, & Tilden; erection of building on site between Emerson-street and Bear-gardens, Southwark, on application of Messrs. Crickmay & Crickmay for Messrs. Beck & Pollitzer; buildings at 44, 46, and 48, Roseneath-road, Clapham, on application of Mr. W. G. Ingram for Mr. T. D. Ingram; erection of stable buildings at Barron's-place, Blackfriars, on application of Mr. W. Egerton for Maltina Bakeries, Ltd.; erection of two additional stories at the *Times* printing premises, Queen Victoria-street, City, on the application of Mr. H. O. Ellis; alterations at premises of Messrs. D. Hanson & Sons, Canada Wharf, Rotherhithe-street, on the application of Messrs. H. Langston & Co.; additional cubical extent at Draton Paper Works, Fulham, on the application of Mr. H. Harrington; erection of building in New Bond-street exceeding 250,000 cubic ft. in extent, on the application of Messrs. Inman & Son for Mr. H. R. Inman.

Lutterworth.—Two cottages for Major Jary on Bitteswell Hall Estate.

Manchester.—Messrs. Bradshaw, Gass, & Hops, of Bolton, are the architects selected to design the new Manchester Exchange.

Mansfield Woodhouse.—Plans passed by U.D.C.:—Four dwelling-houses for Mr. Harold Ashley in Yorke-street; house, Mr. Thornley, Morven-avenue; conversion of a shop and two houses, 54, 55, and 56, Station-street, into combined shop and house.

Musselburgh.—Plans are before the School Board for additions to the Grammar School at a cost of £2,750.

Newmarket.—Plans for the laying-out of the King Edward Memorial Hall grounds have been approved by the U.D.C. and the Surveyor instructed to prepare specifications for the necessary work.

Oystermouth.—Plans passed:—Twelve dwelling-houses in King's-road for Messrs. B. Hoppe & Edmund G. Bevan (Mumbles), and eighteen dwelling-houses on land abutting on West Cross-lane for Mr. Frank Beer, builder.

Paisley.—The School Board has decided to ask H.M. Inspector to meet them and consider a scheme for increased school accommodation.

Pembroke (Ireland).—The L.G.B. have sanctioned the borrowing by the U.D.C. of £80,218 for their housing scheme.

Ramsgate.—The L.G.B have given their sanction to the T.C. to borrow £1,695 for a stone flag-making plant at the refuse destructor. About £2,400 has been raised towards the cost of enlarging Holy Trinity Church.

Rhyl.—The T.C. have decided to go on with the scheme for rebuilding the pier and the extension of the promenade at a cost of £19,000.

Richmond.—Plans passed by T.C.:—Mr. A. C. Osman, additions to 26, Lower Mortlake-road; Mr. E. J. Cave, new shop at the corner of George-street and Water-lane; Messrs. Hampton & Sons, Ltd., additions to Ashburton House, Richmond-hill; Mr. Clarke Ashworth, alterations and additions at 22, Park-road. Negotiations are on foot between the C.C.'s of Surrey and Middlesex for the widening of Richmond Bridge.

St. Austell.—The L.G.B. have given their sanction to the U.D.C. borrowing sums of £407 and £4,669 for housing.

St. Pancras.—The B.G. are considering a scheme for the expenditure of nearly £8,000 on the workhouse.

Seaham Harbour.—Plans approved by U.D.C.:—From Messrs. W. & R. Milburn, on behalf of the Wesleyan Methodist Church, Sunderland-crescent, for school chapel at Dawdon, and from Mr. J. Heslop, on behalf of Messrs. Uimmo & Son, Ltd., for rebuilding the Londonderry Arms, South-crescent.

Sedgefield.—The R.D.C. have passed plans for thirty-four houses at Windlestone Colliery for Messrs. Pease & Partners.

Slough.—Plans have been passed for additions to the secondary school.

Stevenage.—The Herts E.C. are recommending the C.C. to erect a special subject centre at an estimated cost of £650.

Stirling.—The School Board have resolved, subject to the consent of the Scotch Education Department, to purchase the Girls' Industrial School buildings and site for the purpose of possible extensions to Allan's School, which adjoins.

Sutton-in-Ashfield.—The U.D.C. have approved plans for a post-office in Brook-street.

Swanage.—Plans approved:—Business premises at the corner of Station-road for Messrs.

Job Smith & Son, deposited by Mr. H. E. Hawker, F.S.I.; five shops on the old depôt site in Station-road for Mr. Joseph Parsons, deposited by Mr. L. D. P. Way.

Tonbridge.—The R.D.C. have decided to submit the surveyor's estimates for cottages to the L.G.B. in connection with the loan of £7,496 they are asking for. The details are:—Six cottages at Petteridge, Brenchley, £1,077; four cottages at Pixott-hill, Brenchley, £625; eight cottages at Hadlow, £1,521; four cottages at Hildenborough, £921; eight cottages at Horsmonden, £1,496; eight cottages at Pembury, £1,656; a total of £7,496.

Troon.—The Dean of Guild Court has passed plans for the erection in Crosbie-road of a new club-house for Portland Golf Club, at an estimated cost of £1,000. The T.C. are to take into immediate consideration a housing scheme, and a letter has been received from Mr. J. Harling Turner, the Duke of Portland's factor, stating that he would be quite prepared to consider the question of feuing the ground between Woodroad and Back Templehill for workmen's houses.

Upper Renfrewshire.—Plans passed:—Three double cottages in new street at Overlee, Clarkston, for James Merry, Arthur-street, Clarkston; double villa in Bulloch-avenue, Giffnock, for John Taylor, Easwood-avenue, Giffnock; addition to laundry premises in Church-road, Busby, for Robert Alexander, Busby Steam Laundry; alterations on house at Meikleriggs, Paisley, for Mr. Archibald Craig, West Home, Paisley; and motor garage and chauffeur's house at Dunavon, Giffnock, for Mr. Andrew H. Holm, Dunavon, Giffnock.

Uttoxeter.—Plans passed for house in Eaton-street for Mr. H. Smith, and the conversion of old buildings at The Hockley into a cottage for Mr. W. T. Walker.

Walton.—The U.D.C. are asking the L.G.B. to sanction a loan of £1,587 for constructing a sewer to the Whiteley Homes.

Walton Heath.—To meet the demand for cottages suitable for working men Sir George Riddell has given instruction to his architect to prepare plans for twelve small dwellings. Lady Russell of Killowen also contemplates erecting several cottages.

West Dean.—The Cannock Colliery Company propose purchasing land from the Crown and erecting cottages for their workmen as occasion requires.

West Thurrock.—The Parochial Committee have decided to apply to the L.G.B. for sanction to a loan of £5,670 for the erection of the cottages, this sum to include road-making, fencing, drainage, and architect's fees.

Willington.—Plans passed:—Six houses by Mr. Thomas Dunn; alterations in Railway-terrace by Messrs. Strakers & Love.

Windsor.—Plans have been passed for alterations to Messrs. Barclay & Co.'s bank premises in High-street.

Wisbech.—The Cambridge Territorial Association has acquired a site for the erection of a drill hall. The T.C. have accepted the offer of the Ecclesiastical Commissioners to sell a piece of land for housing on which forty-six cottages can be erected for £1,325.

Wolverhampton.—The T.C. propose erecting some cottages for firemen.

Worcester.—The E.C. have approved plans for a new school, and they have been forwarded to the Board of Education. The cost is estimated at £9,970.

Wrexham.—The R.D.C. has instructed its surveyor to find a suitable site near Rhostyllen for housing and to provide sketches of suitable houses.

Yeovil.—Plans passed by R.D.C.:—Mr. E. Perry for a new house for Mr. C. Carter at Preston-grove, Yeovil; Mr. G. Fane for a house at Curtgate.

GENERAL BUILDING NEWS.

CHURCH BUILDING AT FRAMINGHAM PIGOT.

Messrs. Lucas & Lodge are the architects for the extensions to the Church of St. Andrew at Framingham Pigot. The extensions take the form of an enlargement of the chancel. The builders were Messrs. J. S. Smith & Son, of Norwich.

OFFICES, FINSBURY-SQUARE, E.C.

Offices for the London and Manchester Industrial Assurance Company, Ltd., are being erected at Nos. 46 and 47, Finsbury-square, E.C., in continuation of the unified scheme for rebuilding the southern side of the square. The architects are Messrs. Gilbert & Constanduros, Finsbury-square, and the general contractors are Messrs. Patman & Fotheringham, Ltd., Theobald's-road, W.C. The site was cleared by Mr. B. Goodman, Dalston. The steel contract has been let to Messrs. Smith, Walker, & Co., Tothill-street, Westminster, and the granite will be supplied by Messrs. Fenning & Co., Hammersmith.

FIRE-STATION, HAMMERSMITH, W.

A fire-brigade station is in course of erection at Hammersmith. The architect is Mr. W. E. Riley, F.R.I.B.A., Superintending Architect of the London County Council, and the general contractors are Messrs. Walter Lawrence & Son, Finsbury-circus, E.C.

FACTORY, HACKNEY.

A large boot factory has just been completed at Well-street, Hackney, under the supervision of Mr. Harold Burgess, Licentiate R.I.B.A., Queen Anne's-chambers, Westminster, S.W. The general contractors were Messrs. Charles Hall & Co., Elkhorn Works, Cleveland-gardens, Harringay Park, N.; the steelwork was executed by Messrs. H. Young & Co., Ltd., 47, Victoria-street, S.W.; the granolithic floorings were executed by Messrs. Brookes, Ltd., Caxton House, Westminster, S.W.; the ventilation system was executed by Messrs. Rowell, of Westminster, S.W.; the heating was executed by Messrs. Buckleys (London), Ltd., 433, Birkbeck-chambers, Holborn, W.C. The whole of the modern plant is being driven by electrical power.

PREMISES, HATTON GARDEN.

The rebuilding of Nos. 37 and 38, Hatton-garden is now complete, and No. 36 is being demolished, and will be re-erected as an extension to Nos. 37 and 38, Hatton-garden from the design of Messrs. Homer & Lucas, architects, Evelyn House, Oxford-street, W., the builders being Messrs. Spiers & Son, Ltd., 2, Hill-road, Abbey-road, St. John's Wood, N.W.

INDUSTRIAL MUSEUM, WESTMINSTER.

A Home Office Museum is being erected in Horseferry-road and Elverton-street, Westminster, under the architectural superintendence of Mr. H. A. Collins, A.R.I.B.A., of H.M. Office of Works, Storey's-gate, S.W. The general contractors are Messrs. Davy & Armitage, Southend.

BUSINESS PREMISES, W.

Showrooms, etc., are in course of erection at No. 33, New Cavendish-street, W. The architect is Mr. A. E. Hughes, F.R.I.B.A., 28, Mortimer-street, W., and the general contractors are Messrs. Higgs & Hill, Ltd., Crown Works, South Lambeth-road, S.E.

HOTEL ALTERATIONS, BLOOMSBURY.

Considerable alterations are being made to the Hotel Russell, Bloomsbury, under the architectural guidance of Messrs. Murray, Delves, & Murray, Racquet-court, Fleet-street, E.C. The general contractors are Messrs. Patman & Fotheringham, Ltd., Theobald's-road, W.C. The work consists mainly in providing about fifty extra bathrooms in the building, and this necessitates the adaptation of existing bedrooms, etc. The baths will be supplied by Messrs. Maple & Co., Ltd., Tottenham Court-road, W.

TRADE NEWS.

Under the direction of Mr. P. Murray Thomson, surveyor, Mealsgate, Cumberland, Boyle's latest patent "air-pump" ventilator and ventilating appliances have been applied to the Lecture Hall, Mealsgate.

The Machine Gas, Ltd., D'Arblay-street, Poland-street, W., have received instructions, subject to the approval of the Local Government Board, to install a 200-light installation at Hambledon Union.

Messrs. J. Attwood, of Station Works, Stourbridge, have issued leaflets dealing with their hot-water pipes and fittings, heating apparatus, etc. Special attention is drawn to the "Eclipsem" apparatus, which is designed for the effective and economical heating of warehouses, shops, offices, etc.

At the Alhambra a new fireproof curtain has been provided, which has been made to comply with the latest London County Council requirements. The "production" of the curtain and the fitting up thereof were the work of Messrs. Merryweather & Sons, of Greenwich.

The Lowden Schools, Wilts, are being supplied with Shorland's warm-air ventilating patent Manchester grates by Messrs. E. H. Shorland & Brother, Ltd., of Failsworth, Manchester.

One of the latest users of "Pudlo" is the architect for the Middleton Sanatorium, near Wakefield. We understand that the architect specified it for the Bradley New Schools.

WESTMINSTER CITY COUNCIL.

At the first sitting of the Westminster City Council in the new year, on January 15, the following matters were dealt with:—

Grosvenor Canal Property.—Consent was given by the Council as freeholders to the additions to their premises proposed by the Wolseley Tool and Motor Company, at a cost of £830.

Building Lease.—The Board of Education reported having authorised the Trustees of Reeve's Foundation to grant a building lease of 2,654 sq. ft. of land known as Golden-square.

District Surveyors' Fees.—The Council concurred in a resolution emanating from the Hackney Borough Council to the effect that the fees which District Surveyors are entitled to charge under the third schedule of the London Building Act, 1894, in cases of small additions or small alterations, are unreasonably high, and that legislation should be promoted with a view to reducing such fees.

Horseferry-road Mortuary Premises.—It was decided to obtain tenders for a scheme involving considerable structural alterations to the mortuary premises in Horseferry-road.

DIARIES FOR 1914.

A DIARY published by Messrs. S. Davis & Co., for the use of "consulting engineers, architects, electrical contractors, central station engineers, and all users of electrical apparatus," and styled the "Electrical Engineers' Diary," contains an unusual amount of useful information. It is divided into a number of special sections, amongst which are the official rules and regulations, the application of electricity for lighting, heating, and cooking, a schedule of London streets in which electricity mains are laid, and a good deal of general information. When the list of people to whom a book is said to appeal is as long as the one above, one is inclined to be rather sceptical; this, however, seems to be a genuine case.

Messrs. W. H. & L. Collingridge have issued the fifty-first edition of "The City Diary." In addition to the diary itself, which is interleaved with blotting-paper, much valuable information is given relating to the City Corporation, City companies, schools, churches, banks, etc. City men will find this a most useful diary; the price is 1s., and can be obtained from the publishers at 148, Aldersgate-street, E.C.

OBITUARY.

Mr. A. Groves.

We regret to announce the death, in his eighty-eighth year, of Mr. Alfred Groves, of Milton-under-Wychwood, Oxford, which occurred rather suddenly on Friday last. The deceased was well known as a church restorer, besides having been engaged in many other important works. Few men have earned the respect of those with whom and for whom they worked, and of those who worked for them, to the same extent as the late Mr. Groves. His fine presence and natural dignity impressed at first sight all those with whom he came in contact, and this impression was deepened on further acquaintance. He came of an ancient stock of stonemasons and builders, the records of his family in this line going back for centuries. He was steeped to the lips in building lore and tradition; the type is getting rare, but in his case he has left sons who follow in his steps. A keen sportsman, the coolness and deliberation of his deadly shooting appeared something like—but was not—slowness, and was characteristic of the man.

PATENTS.

APPLICATIONS PUBLISHED.*

29,492 of 1912.—William Alexander Fraser: Flushing systems.

104 of 1913.—Albert Washington Borlase and Eddie Borlase: Air-drying apparatus for clay.

264 of 1913.—The Patent Lightning Crusher Company, Ltd., Harry Turner Tovey, and Albert Donald Furse: Crushing, pulverising, and disintegrating machines.

8,014 of 1913.—William McPherson: Construction of bridges.

8,765 of 1913.—James McKenzie: Enclosing structures or housings for dust-bins, refuse receptacles, and the like.

14,114 of 1913.—James Augustus Wheeler: Fireproof doors.

16,049 of 1913.—Arthur Steinbrecker; Excavating or dredging machines.

16,009 of 1913.—Jean Baptiste Mat: Flushing apparatus for water-closets.

26,048 of 1913.—Wilhelm Romermann: Shoring and strutting, excavating, and the like.

WATER SUPPLY, LAYER MARNEY.

The Lexden and Winstree Rural District Council, Essex, have instructed Messrs. Taylor & Wallin, civil engineers, of Newcastle-upon-Tyne and London, to prepare a scheme for and report upon water supply for the parish of Layer Marney.

* All these applications are in the stage in which opposition to the grant of Patents upon them can be made.

BY-LAWS AND STANDARDS.*

DOUBTLESS many members of this society are actively engaged in putting into operation the by-laws and regulations adopted by the various bodies they represent, and it should be said at once that very many by-laws are necessary for the well-being and safety of the public, and, speaking broadly, their administration makes for the general good of the communities affected by them.

My remarks this evening will be chiefly confined to those by-laws directly connected with building. To go deeply into the history of the subject would leave us no time for the consideration of its modern aspects, but it should be pointed out, in passing, that the Romans had an elaborate code of building by-laws which doubtless furnished the basis of the autocratic rules made by the mediæval guilds. These were greatly relaxed by about the middle of the sixteenth century, and became almost a dead letter in the eighteenth, and remained so until well into the nineteenth, when it became patent that more drastic regulations were essential for the protection of the public—particularly the poor—against the erection of insanitary buildings, too narrow streets, back-to-back houses, and hole-and-corner courts approached by narrow passages, and those disgusting midden closets which formed perhaps the greatest abomination of an age of overcrowding and general indifference to the most elementary considerations of hygiene.

The effort of the modern ratepayer to wipe out the accumulated sins of his fathers for many generations has proved a difficult and expensive matter, and, with this laudable object in view, his representatives have formulated such a number of by-laws for his protection and assistance, so many restrictions and irksome prohibitions, with their countless amendments, that thoughtful people are beginning to wonder whether the builder is not being killed by an excess of the medicine that was intended to cure him. In other words, whether it is really necessary or desirable for our present-day authorities to go on administering more commandments than can be readily remembered or conveniently obeyed. More restive spirits are asking whether some by-laws would not be "more honoured in the breach than in the observance," and most sensible men are feeling that the making of rules is being rather overdone. A further question is, "Do not these multifarious regulations tend to stifle enterprise and stultify invention?" You will see from these opening remarks the point of view from which I propose to discuss matters to-night, and whether or no I am able to carry conviction I hope to provide you with food for thought.

Let us now get to closer quarters with the subject and take for our first example the small cottage. The modern English cottage is often a model of what it should be from the practical and sanitary points of view, but its ugliness is usually extreme; while the Old English cottage, yielding to none in beauty and charm, is often inconvenient and more or less insanitary. The question immediately arises, "Why are utility and beauty—the two essential qualities of a proper dwelling—so seldom found in the same cottage? Why should a healthy cottage, that combines what is necessary with what is so eminently desirable in a simple and unaffected manner, be beyond our present resources?" My answer is that one of the chief obstacles is in our by-laws, that usually bring about that "beggarly array of boxes" with which we are all so painfully familiar, and eventuate in street upon street of dreary dwellings, as destitute of beauty as of individuality, that subdue the spirit and afflict the eye. Take, for example, by-law No. 11 of the Borough of Leicester, which in its provisions is typical of most others:—"Every habitable room on the ground floor shall be in every part thereof 8 ft. 6 in. in height, at the least, from floor to ceiling; every habitable room, except those in the roof, shall in every part be at least 8 ft. high from floor to ceiling, and every habitable room in the roof of any such building shall be at least 8 ft. in height from floor to ceiling, throughout not less than one-half the area of such room," etc. In my opinion every one of these provisions is too restrictive. The height of the ground-floor rooms might quite well be reduced to 8 ft., or even 7 ft. 6 in., and the first floor might, and with advantage, be 8 ft. under part of its ceiling area only, instead of under the whole, as stipulated; while, in regard to the rooms in the roof, I see no sound reason for restricting the floor area in relation to that of the ceiling.

If the rooms are sufficiently spacious in themselves it is difficult to understand how a by-law which reduces the reasonably possible floor area can be usefully applied.

The only restriction which appears to me to be necessary is one giving a sufficient area of ceiling at the 8-ft. level, and providing that the vertical sides shall be not less than 2 ft. 6 in. or 3 ft. high. To this by-law No. 11 we owe the familiar type of cottage we deplore. Please note the section that results from its normal operation, and observe the roof which has to be kept clear of the 8 ft. This leads to another factor—namely, the usual flat pitch. There you have the problem met in the most direct and commercial manner; ugliness is the necessary result. By-law No. 12 is another that is irksome rather than useful. That the top of a window should be 7 ft. 6 in. from the floor is not, in my judgment, necessary, especially in bedrooms. Six feet would be ample for the regulation height. To teach people to open their bedroom windows would be much more beneficial than fixing a height for the window head. What does it matter, within the four corners of reason and common sense, how high a window is? Given cleanliness and fresh air, your room will be healthy, and the two things needful are a window that will open and the means of cross-ventilation. So much for by-law No. 12.

With regard to Nos. 17 and 18, it is difficult to see the reason for retaining the requisition that the joints of drains "shall be embedded in, and surrounded with, well puddled clay"—a method of construction that has led to much bad work and some disaster, especially when one goes into the details of what is now required, as given in an appendix.

Then our borough by-law No. 33, enacting that "no pilaster, plinth, cornice, or other part of any new building, or of any new front, or addition to any existing building shall project or encroach over any footway," is a very mischievous restriction as far as architecture is concerned. We may concur, as regards projections over the pavement at the ground level, but why more reasonable latitude than the usual 1-in. projection for each 1 ft. in height should not be allowed high up is difficult to understand. Such a hard-and-fast rule imposes light and shade limitations and begets a tame architectural effect. There are some dismal reminders of the application of this by-law in our own town. For some years past at various times we have tried to persuade the Corporation to relax their regulation calling for a 6-in. diamter drain to each cottage, and especially have we tried to induce them to allow the substitution of a 4-in. drain from a water-closet in place of the 6-in., being fully convinced that the suggested alterations would enable the drain more effectually to cleanse itself. Up to the present we have failed to carry our point. The municipal mind does not see as clearly as we do that the ordinary drainage from a small house is not sufficient in quantity to flush a drain of such large diameter. For example, a 4-in. pipe discharges 109 gallons at a velocity of 200 ft. per minute, so that in small houses it is approximately able to do all that is required in one minute; or in the course of a ten-hour day a drain of this diameter, and at this fall of 1 in 50, will carry out its work 600 times over. Now, I put it to you—Is it intelligent to insist on the provision of a larger diameter, which in most cases becomes foul through insufficient flushing? To bring this point home, the example of the Leicestershire and Rutland Asylum may be cited, where, for about a dozen water-closets and certain other wastes, a 4-in. drain has proved amply sufficient. Now, the drainage from a lunatic asylum is a severe test, for the patients put down the closets all sorts of foreign substances and unsuitable articles, such as boots, corsets, headgear, and even brick ends when they are available.

Of course, these things have to be removed, but after five years' trial we are quite satisfied that a reduction in the diameter of the drains has resulted in a cleaner condition, and we are more than ever fortified in our opinion that a 6-in. drain is not usually cleaned by the drainage of one cottage only. In the case of the Leicester borough pattern gulley, which we persistently attacked for about a generation, we have been more successful. The insistence of the Corporation on the universal adoption of that wonderful invention, which never kept itself clean and rarely enjoyed the purgative attentions of householders, filled us with amazement. At last we had to risk being summoned for disobedience to the by-laws rather than continue this most insanitary contrivance. We quite think that reluctant rebellion caused the powers that were to consider the matter more closely, with the result that we are now allowed to use a simple siphon gulley, which does its work in a cleanly manner.

Another Leicester by-law which contains an apparently superfluous requisition is the one relating to manhole covers, which are specified to be non-ventilating, but below each must be a dirt box, to prevent street sweepings from dropping into the sewer. Why this dirt box should be placed beneath a cover that must not have a single hole in it, and why this by-law should be sanctioned by our grave and reverend signiors, are occult mysteries beyond my simple understanding.

Just a word about intercepting traps. Formerly an intercepting trap, or siphon, was required on every private connection drain before the point where it discharged into the main sewer, and in most districts this is still called for. I am pleased to say it is not now insisted upon in Leicester, except under certain conditions. For this alteration we are grateful, being fully convinced that in spite of his being in a minority among surveyors on this matter the Borough Engineer is quite right in his endeavour to do away, as far as is reasonable, with all these traps, which form obstructions, almost invariably interfere with the circulation of air in the drains, and frequently get stopped up, causing dangerous conditions, especially where wet basements have been drained into the deep foul sewers.

I need not describe the horrible state of affairs occasioned by a stoppage in the trap causing the drainage to back up into cellars. In some cases floors with the bricks on sleepers, built hollow to give a free outlet to the subsoil water, have been saturated with sewage for weeks before the origin of certain noxious smells could be located. Occupants of such buildings have actually been living over their own little sewage farms, all through these wretched traps getting blocked up and backing up the foul matter.

Another very general by-law, which, thank goodness, is not operative in Leicester, to which all persons of taste take exception, requires that every division wall between the houses shall be carried up through the roof. This destroys the continuity of the roof, provides so many more places for the admission of weather, and is exceedingly ugly. Of course, the idea is to prevent the spread of fire; but this can quite well be provided for by bedding the roof material down to the wall. Why, then, persist in the æsthetic sin of cutting holes through the roofs every 15 ft. or so? In most districts the thickness of walls is regulated. In many other districts windows having an area equal to one-tenth the area of the floor space are insisted upon, a very damaging provision in the case of dormer windows, which, considering their exposed position, should be of much less area than this requisition calls for. There are pages of rules giving lengths and heights, which entail certain, often arbitrary, widths of brickwork. Here, again, we are free in Leicester, but nearly all the smaller authorities have these harassing rules, which pay no regard to the weight-bearing capacity of the bricks used. I need not tell you that a Leicestershire or Staffordsire brick will bear many times the weight which, say, a Sussex or East Coast brick will carry; yet so nonsensically rigid are these blessed old model by-laws that the same rules, irrespective of local conditions and individual circumstance, have to be complied with. In one case in our own experience the application of this rule-of-thumb by-law had a fantastic outcome. A small warehouse, partly on a site only 10 ft. wide, being three stories high, was required to have surrounding walls to its lower floor two bricks thick. The resulting proportions were 3 ft. 2 in. of wall to 6 ft. 10 in. of floor space. This is a striking *reductio ad absurdum* of a type of inelastic by-law, which through its literal application by surveyors and authorities, who dare not do right for fear of doing wrong, brings local government into contempt and erects monuments of ineptitude.

In another outside district we have just had

* A lecture by Mr. S. Perkins Pick, F.R.I.B.A., read at a recent meeting of the Leicester Association of Engineers.

a curious experience. Most of you here are aware of the excellence, for work below ground, of walls built with blue bricks bedded and jointed in cement. You will, therefore, be surprised to learn that even this solid and enduring construction was disallowed in the case I have in mind. The wall must be divided and the internal space filled with bitumen or asphalt, ordinary bricks being allowed. Now, absolutely certain as we in this district are that our blue brick method is infinitely sounder than the construction they required, and as this wall had to carry considerable weight, you will understand our disappointment when we learnt that we must obey their rule, though we were fully convinced that our method, which had been proved and tried, was so much the better. This is the kind of humiliation that has to be endured by professional men, who would do justice to their clients, but are hampered by rules that should not apply in all circumstances. If public bodies would give more consideration to broad issues and less to tiresome details our emancipation would be nearer.

But to return to what more directly concerns us—the incidence of the by-laws in our own town. In the Appendix are many regulations which have to be complied with relating to the construction of new streets and the footways, drains, and various associated details. Some of these are onerous in the extreme, and unless great alterations are made in them their stringent application will bid fair to stop all house building by private enterprise for the industrial classes. You will see that this is a serious indictment that requires a substantial justification. As a preliminary, I should like to direct your attention to a very pertinent letter contributed to the press about a fortnight ago. We are in agreement with the general statistics set forth and the main conclusions arrived at in that letter, and as the case is put fairly it will be well to quote the words as far as they apply: "Much is being heard, and much more will be heard, about the scarcity of suitable houses for the industrial classes, both in urban and rural districts. The population is increasing. The spread of education and the desire for more decent housing and better and brighter surroundings is a hopeful sign of the times, but the demand greatly exceeds the supply. I fully believe that 1,000 new houses could be readily let in Leicester at the present time, but they are not forthcoming. There is no encouragement to build this class of house, because builders cannot find purchasers at remunerative prices. The net return at the prevailing rents does not encourage the investment of capital. I will take the case of a six-roomed cottage in Leicester, viz., the houses which are built on land plots about 66 ft. deep. The streets are 40 ft. wide, paved with granite setts, and a cross street every 175 yds. The streets have superior foul and storm sewers, with all necessary gully grates and drain connections, granite curbs, footways slabbed, etc. This is all the stereotyped plan, according to the regulations and by-laws of the borough of Leicester, solid, substantial, suitable for heavy traffic, inexpensive to maintain, once properly finished, but monotonously dull and uninteresting.

The costs of the above streets altogether, including interest on money expended during development at the rate of 4 per cent. per annum, worked out at 6s. 8d. per square yard on the net building land. Taking the basic value of the land at 3s. 4d. per yard, this results in a selling price of about 10s. per yard for net land."

Other figures went to show why houses for the working-classes are not now being put up. What I desire specially to call your attention to is the prohibitive cost of streets and their accessories. This is a phase of the matter very little understood and appreciated. I would ask how many of you even have actually realised that the cost of streets, when laid down according to these Corporation by-laws, puts from 6s. to 7s. per super. yard on the net price of the land? In other words, the cost of these streets before the pathways are made is from £10,000 to £12,000 the lineal mile. And after they are finished for handing over to the Corporation the cost in many cases reaches the enormous total of £16,000 per mile. Now, I ask you, as thinking members of the community, are not these costs unreasonably and disproportionately high? And are the results worth the outlay? Do you clearly grasp that over two-thirds of the cost of cottage building sites is in these superior streets? We hear a great deal about garden cities and town planning, but it is quite evident that the Utopian visionaries who talk so glibly on these subjects have not taken into consideration the real difficulties which confront builders and those who would develop land. How is it possible, I would ask, to lay out spacious building plots for cottages when a substantial rent is absorbed in the making of these wonderful streets? You may take it from me that so-called garden cities for industrial dwellings can never spring up while the heavy charges which these by-laws involve suck the very life-blood out of building enterprise. Persistent attacks are made by superficial, or disingenuous, orators and writers on the "land jobber"—*i.e.*, the man who buys an estate and develops it (if he can)—who is charged with drawing extortionate profits from a hapless public. In my opinion these attacks have been characterised by a distortion of the facts, because, broadly speaking, developers of land have not, as a matter of fact, made the unwarrantable profits people have been led to believe. The many failures which have outbalanced the conspicuous successes in this line of business are a sufficient answer to the uncharitable attacks that have been made by windy demagogues and shallow enthusiasts on a class of enterprising men to whom Leicester, with many another large town, ought to consider itself deeply indebted. These thoughtless criticisms take no account of the risks that are run and the solid obstacles that have to be contended with by these pioneers of corporate expansion. If such plunder is made, and can still be made, out of building speculation, how is it that the building estates about Leicester are practically at a standstill? The fact that they are stares us in the face, and is a sufficient refutation of these flatulent critics. Why, no end of building estates in this town are now being offered at less than cost price! And the chief reason of this stagnation is to be found in increased rates and taxes and the burdensome by-laws to which I have referred.

In the present practice of the borough there is practically but one standardised type of street, namely, the 40-ft. granite-set-paved. Other kinds that may be adopted, subject to the special approval of the Council in each specific case, are 50-ft. macadam roads and tar-macadam roads. All these are most expensive from the point of view of economic housing, and it would seem that the reduction in the cost of equipping land with roadway, sewers, etc., would be the most obvious way of facilitating the provision of cheaper dwellings, seeing that, assuming a bulk value of £800 per acre, which is not excessive within 1½ miles of the centre of the town, net building plots require to sell at not less than 10s. per yard super., and that of this amount two-thirds is in the street and development costs. The actual cost of roads and sewers in building estates, as generally laid out, is one-twelfth of the whole cost of house, land, streets, and development. You will see that if it is possible to reduce this every effort should be made to do so. The facts demonstrated are of prime importance in the housing question, and it is plain that the reduction of the cost of roads is absolutely necessary if there is to be cheap and negotiable building land. The objection may be made that to reduce the cost of construction would increase maintenance charges and prove in the end to be false economy. But the maintenance charge depends largely on the amount of traffic, and in suburban residential areas this is very light, and the cost of keeping up an ordinary macadam road in such circumstances is probably no greater than that of the paved street.

Before attempting to suggest remedies I should like to say a word or two more about the much maligned speculative builders. In spite of the crude denunciations of busybodies, and notwithstanding that the products of their enterprise have not always been just what we should like to see, these local men have put up houses of the class in question that are far superior to what are to be seen in most other places, and they have erected houses which, in spite of their dull monotony, are airy and healthy, and I may safely say that, had it not been for the paralysing effects of arbitrary by-laws, their appearance would have shown a vast improvement ere now. And as for those gilt-edged streets of ours, does anybody enjoy their noise and grim uniformity? Would not people sooner have a little more greenery and a little less granite? The question of cost does not affect owners only; it is the tenant and the lodger who ultimately bear the burden, though the estate and landowners are put off by it first. By whatever means houses are erected this natural law cannot be escaped in the long run. The "consumer" always pays in the end. A general clamour for new houses is imminent, and if private enterprise cannot be stimulated the public authority will have to take the work in hand, and let no one "lay the flattering unction to his soul" that a public body, however democratic, can override an economic law. I am convinced that it cannot put up houses at anything like the price at which they have hitherto been supplied by private builders. It will be either "up with the rent" or "up with the rates," and either contingency means the same thing eventually. So we come back to our contention that the outlay on road construction must somehow be reduced. If councillors will not see this in time they will realise it when they have to come before the electors with a proposition for substantially increasing the rates.

The question of How is the road cost to be reduced? may be answered in two ways. First, by obtaining greater elasticity of the laying-out rules, and so reducing the amount of space appropriated from the estate; and, secondly, by economising in the roads themselves. An economy in land space does not necessarily involve restricting the air space around buildings, for the same space can be left between the houses and occupied by fore-courts or by borders and verges not formed for traffic. In special cases, if the necessity for future widening were at all probable, the adjoining owners could hold these fore-courts at nominal quit rents, whilst enjoying their use and maintaining them; and, likewise with verges, they might agree to maintain them. The cross street limitation should be relaxed and the terminal street recognised as legitimate when employed with discretion. In both cases a limit of length must be retained and proper provision made for pedestrian access at shorter intervals. This could be done, and a very considerable saving effected.

The second way to economise is to reduce the cost of the road-making itself. Main traffic roads, wide enough for double lines of tramway, acting as radial arteries and ring boulevards, would seldom be constructed, except at the instance of a local authority. Local traffic roads might be 40 ft. wide, with 10 ft. set backs, providing a space of 60 ft. between the buildings, and of a cheaper, but adequate, construction. I need not detain you with details.

What are non-traffic roads might easily be much more cheaply constructed. I suggest that a 16-ft. macadamised roadway with 7 ft. pathways, the distance between the houses being 50 ft. To secure quiet, I further suggest the placing of posts across the streets, dividing them into two non-traffic lengths, with a forest tree planted in the centre of each street, to close the perspective. This, with other greenery and the front gardens, would secure a surrounding amenity. This arrangement may be seen in Salisbury-road, the beauty of which has been considerably impaired recently by cutting down full-grown trees, and substituting others which the present occupiers will not live to enjoy.

I have three suggestions for terminal streets:

1. A road and paths, together measuring 20 ft. wide.

2. Double roadways of 12 ft. wide, but without footpaths, divided by a 10-ft. space for trees, making a total of 34 ft.

3. A pathway 10 ft. wide only.

These street suggestions reduce the cost of streets by one-half.

All these, in certain positions and surroundings, would be excellent for residential purposes. What could be pleasanter than scheme No. 2, which does away with footways altogether and provides for a single line of trees down the centre of the road, well away from the houses? Is there a single human being who would not rather live in a road like this than in the ordinary granite-paved street? Here again no originality is claimed, for the plan can be seen, carried out on a somewhat larger scale, in the West-walk, one of the most agreeable roads in Leicester. It would be interesting to hear from the Chairman of the Highways Committee whether he, or anybody else who lives in this charming position, has ever experienced the slightest inconvenience from the absence of footways. A series of such streets would create a delightful district,

and if no one can show that the disadvantages of such a plan would outweight its advantages, why, in the name of reason, should not the by-laws be so altered as to allow its repetition?

It is interesting to note that one of the few really good pieces of town planning Leicester can boast of was carried out sixty or seventy years ago. I refer to the Upper New-walk, with its two green squares and the Oval. I do not suggest that six-shilling or even seven-and-sixpenny houses can be planned amid such generous surroundings, but a great deal could be done on the lines it suggests. The ideal to aim at is a wider frontage to each house, but this cannot be obtained if the present high-priced street remains a borough regulation. As I said a few minutes ago, some short-sighted people seem to imagine that the whole cost of these irksome by-laws can be extorted from the unhappy man who develops the land. Such a contention is, of course, not tenable, and the sooner it is realised that these burdens must be borne by the man who lives in the house the better it will be for everybody concerned. The people who develop land cannot for one moment be expected to carry out their work for the mere fun of the thing. The philanthropy, which they possess in as large a degree as those who would penalise them, has more pressing outlets, and they, like other men, are entitled to a fair return for the capital they lay out and the risks they incur. I will give you an example that will drive all this home.

Last October a certain Corporation had to consider the erection of twenty semi-detached cottages. The plans showed bedrooms 7 ft. high, while there was a by-law compelling all private builders to provide for a height of 9 ft. The Corporation had to set aside its own by-law (the Act gave them this power), but could anything be more ridiculous than a public authority insisting upon private builders obeying a regulation which they found themselves unable to comply with? They learned a lesson by experience, and an understanding was arrived at that any builder would, in future, be allowed to erect such houses with bedrooms 7 ft. 6 in. high.

As a final argument for a revision of our by-laws I will quote from a Local Government Board circular to district councils, dated August 29, 1912, which, after stating some of the considerations I have been bringing before you, and pointing out that certain earlier by-laws are "inappropriate to types of construction now in use," winds up:—

"It therefore behoves all local authorities from time to time to consider the terms of the by-laws in force in their areas, so as to see that they are sufficient to meet present-day requirements. The Board will be happy to render assistance to any authorities who may desire to modify their existing by-laws by referring them to clauses which have been embodied in series already adopted or by such other suggestions as may be practical."

We are suffering nowadays from a mad passion for standardisation. Who wants to see bricks all the same size, streets paved all alike, and weary lines of uniform windows and doors? I suggest that these insane obsessions should be thrown off with all possible speed; and when we have cleared our minds of all this useless lumber, let due and careful consideration be given to such proposals as I have laid before you to-night. I have submitted no new-fangled eccentricities, but what I seriously, with all the earnestness of sincere conviction, would urge upon everyone concerned in these matters is a return to common sense and the open mind.

THE LONDON COUNTY COUNCIL.

THE first weekly meeting of the London County Council after the Christmas recess was held on Tuesday in the County Hall, Spring-gardens, S.W., Mr. Cyril Cobb, Chairman, presiding.

Tenders.—Tenders were received as follows:—For providing and fixing boilers and hot-water heating apparatus at the Vernon-square School, Finsbury; for an electrical installation at the same school; for enclosing additional land for playgrounds at the Westbourne-road School, Islington; for redrainage works at the Wornington-road School, Kensington; for the enlargement of the Broadwater-road School, Wandsworth; for the enlargement of the Maryon Park School, Woolwich; for the conversion into various centres of school buildings at the Maxey-road School, Woolwich; and for the formation of roads, sewers, etc., on section C of the White Hart-lane estate.

London Traffic Control.—A long Report on the traffic of London was presented by the General Purposes Committee, and the following recommendations were made by the Committee:—

(*a*) That the Council do concur in the view of the Select Committee that in all metropolitan traffic matters Parliament should be advised by one department, which should combine the traffic duties of the Home Office, Local Government Board, and Board of Trade.

(*b*) That the Council do signify its willingness to accept a new traffic branch of the Board of Trade as a suitable authority for dealing with traffic matters in Greater London provided that it consists of a small number ofspecially qualified persons selected solely on the ground of their competence and holding office for a considerable period.

(*c*) That, in the opinion of the Council, county councils within the area for which this traffic branch be established should be empowered to submit proposals for dealing with traffic matters (including proposals for by-laws), that the traffic branch should inform all municipal authorities and other parties interested in the subject to which such proposals refer that the proposals have been submitted, consider all criticisms submitted thereon, if necessary hold a public inquiry on the subject, give their decision thereon, and, if necessary, make such by-laws on the subject as may seem expedient to the traffic branch.

(*d*) That, in the opinion of the Council, borough councils within the area of the traffic branch should be empowered to submit proposals on such matters as fall within their jurisdiction so that the decision of the traffic branch thereon may be obtained.

(*e*) That, in the opinion of the Council, closer control of traffic should be exercised by the police.

(*f*) That, in view of the fact that the police are to control the traffic in the streets of the whole metropolitan area, it is desirable that the police should continue to license vehicles subject to the powers of the traffic branch to make by-laws as to numbers, etc.

(*g*) That, in the opinion of the Council, traffic points should be fixed at a greater number of crossings.

(*h*) That, in the opinion of the Council, more refuges should be provided.

(*i*) That, in the opinion of the Council, means should be taken, as soon as practicable, to remove the congestion caused by tramways, dead ends, street markets, and other roadway obstructions.

(*j*) That, in the opinion of the Council, the measures already taken through the schools to warn children and parents as to street dangers should be continued and extended.

(*k*) That the Council do concur in the view expressed by the Select Committee in paragraph 128 of their Report, viz.:—

"Your Committee agree with the recommendation of Sir E. Henry that instead of the limits of the Metropolitan Streets Act, 1867, being fixed at 6 miles from Charing Cross they should be extended to embrace the whole of the metropolitan area. The 6 miles radius at present excludes the greater part of West Ham, Canning Town, Forest Gate, Ilford, Leytonstone, Woolwich, Catford, Bromley, Croydon, Wimbledon, Kingston, Richmond, Brentford, Ealing, Acton, Hounslow, Hendon, Finchley, Barnet, Wood Green, Tottenham, and other places with a volume of traffic as great as any but the central zone of the 6-mile limit at the passing of the Act. The Street Act should be so amended that the Commissioner shall have the power to declare any street or portion of a street to be within the special limits for all or any of the purposes shown in sections 10 to 16."

(*l*) That the Council do concur in the view expressed by the Select Committee in paragraph 169 of their Report, viz.:—

"The London County Council had this aspect before them a year ago, when a deputation was appointed to wait upon the Secretary of State for the Home Department to place before him the Council's views in respect of the action taken by the police. This deputation came before the Home Secretary and pointed out various things that had been suggested in the Report to the Home Office on the Council's Bill of 1912, including two particularly serious objections, namely, the alteration of the route. Now the question of the route along which a tramway should travel has all sorts of considerations to be given to it which could not be within the knowledge of the police authorities, and yet they took upon themselves to suggest alternative routes; and the Home Secretary on that point admitted that there were serious objections to suggestions made by the police of alternative routes."

"Under these circumstances, even more than in the case of by-laws, a method should be devised by which opinions held by the police may be before the minds of county councils at an early point, and not be put in an antagonistic position before Parliament."

(*m*) That the foregoing resolutions (*a*) to (*l*) inclusive be communicated to the Prime Minister and the President of the Board of Trade; and that the Prime Minister and the President of the Board of Tade be requested to receive a deputation from the Council to urge that H.M. Government will, at the earliest possible date, take all necessary steps to give effect to the resolutions.

After a long discussion the Report was received, and Sir John Benn then moved that the Committee be instructed to arrange for a deputation to wait upon the Prime Minister to urge the necessity of His Majesty's Government to introduce legislation to give effect to the proposals of the Select Committee. After a division this motion was rejected.

Theatres, etc.—The Theatres and Music Halls Committee have approved of drawings for the following:—75, Balham High-road—reconstruction of operating enclosure and other alterations; 101 and 103, Brixton-hill—alterations to the vestibule; 383 and 385, Brixton-road—electrical arrangements of a new outside sign and of the pay box; 55, Camberwell-road—amended arrangement of balcony; 231, Cambridge-road—provision of wood and plaster proscenium and platform; Canterbury Music Hall—alterations to the electrical installation and construction of a transformer chamber; 18, Dartmouth-road—arrangement of the vestibule; 226, Commercial-road—abolition of stage; 138, Copenhagen-street—connections for motor generator; Coventry and Gambrinus Restaurant—electrical installation; Dalston Theatre—refitting urinal; 253-5, Goldhawk-road—alterations to main entrance; 404 and 406, High-road, Lee—provision of glazed screen in vestibule; 189, Kentish Town-road—arrangement of operating enclosure switchboard and stand-by resistance; King-street, Hammersmith (blue hall, No. 2)—ventilation scheme; 103-7, Kingsland High-street—deviations from arrangements shown on approved drawings; 538 and 540, Kingsland-road—electrical lighting arrangements of proposed extension and proposed manager's office; Kingsway Theatre—installation of dimmers; Lyric Opera House—provision of cinematograph chamber and rewinding room; London Coliseum—extension of tea-room under the main entrance; London Hippodrome—construction of limelight enclosures on each side of the gallery tier; Lyceum Theatre—staircase from o.p. side of circle to manager's office; Muat's Hall, Clapham Junction—rearrangement of balcony; Sadler's Wells Theatre—operating enclosure above the gallery level; Vanston-place (cinematograph hall)—electrical and lighting arrangements; Variety Theatre, Hoxton—electrical and lighting arrangements; 137, Whitehorse-street, Stepney—partitioning off of a portion of the rewinding-room for use as a staff-room.

HAMPSTEAD GARDEN SUBURB EXTENSION.

A new main thoroughfare has been planned to cross the proposed extension of the Hampstead Garden Suburb, in the district of Finchley. Starting from the present termination of Addison Way, near the Mutton Brook, it will pass on across the brook, on each side of which a broad open space will be left, skirt the large playing-fields of about 21 acres, and open out into the proposed Market-square, where it will be joined by Meadway, coming from near Golder's Green Station; thence it passes out into The Bishop's-avenue, which joins the Great North Road within a few yards of East Finchley Station. The thoroughfare will be 60 ft. wide throughout, and will form a very important connecting-link, over 1¼ miles long, between the Finchley-road and the Great North-road. Road and sewer work on the first section has already been started, and the buildings on either side of this will be commenced early in the New Year.

List of Competitions, Contracts, etc.

For some contracts still open, but not included in this List, see previous issues. **Those with an asterisk (*) are advertised in this number:** Competitions, —; Contracts, iv. vi. viii. x.; Public Appointments, —; Auction Sales, xxiv. Certain conditions beyond those given in the following information are imposed in some cases, such as: the advertisers do not bind themselves to accept the lowest or any tender; that a fair wages clause shall be observed; that no allowance will be made for tenders; and that deposits are returned on receipt of a bona-fide tender unless stated to the contrary.

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

*** It must be understood that the following paragraphs are printed as news, and not as advertisements; and that while every endeavour is made to ensure accuracy, we cannot be responsible for errors that *may* occur.

Competitions.

FEBRUARY 1. — **Coventry.** — TECHNICAL INSTITUTE.—The Coventry Corporation invite competitive sketch plans for a Municipal Technical Institute at Pool Meadow.

MARCH 2. — **Hendon, N.W.** — The Hendon U.D.C. invite architects to submit designs in competition for the erection of public baths at The Burroughs, Hendon. Premiums, £100, £75, and £50 respectively. See advertisement in issue of January 9.

MARCH 20. — **Belfast.** — ART GALLERY AND MUSEUM.—The Belfast Corporation invite designs for above buildings. Total cost not to exceed £75,000, of which only £30,000 will be spent at once. Assessor, Mr. John J. Burnet, A.R.S.A., LL.D. See advertisement in issue of November 7.

APRIL 1.—**Sofia.**—DESIGNS FOR A ROYAL PALACE AND LAW COURTS.—Particulars from the Commercial Intelligence Branch of the Board of Trade, Basinghall-street, E.C. See page 173, August 9, and page 850, September 27, 1912; also page 706, June 20.

APRIL 2. — **Ottawa.** — DEPARTMENTAL AND COURTS BUILDINGS. — The Department of Public Works, Ottawa, invite architects to submit sketch designs in a preliminary competition for above buildings. Six will be chosen from these for final competition. The five unsuccessful competitors will receive $3,000. The winner will be entrusted with the work. See particulars in issue for September 19 and advertisement in issue of September 12.

MAY 4.—**London.**—ST. PAUL'S BRIDGE.—The Bridge House Estates Committee of the Corporation of London invite designs from British architects for the architectural treatment of St. Paul's Bridge. Premiums, £300, £200 and £100 respectively. The assessor is Sir William Emerson, P.P.R.I.B.A. See advertisement in issue of December 12.

MAY 15.—**London.**—CONCRETE COTTAGE.—The proprietors of *Concrete and Constructional Engineering* invite architects and others residing in the British Empire to submit designs of a detached or semi-detached labourer's cottage. Premiums, 100 guineas, 50 guineas, 25 guineas, and two at 10 guineas. See advertisement in issue of December 12.

JUNE 20.—**Orillia.**—MONUMENT.—The Executive Committee of the Champlain Tercentenary Committee invite competitive designs for a monument to Samuel de Champlain. Not to cost more than £4,100. See advertisement in issue of January 16.

Contracts.

BUILDING.

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

JANUARY 26. — **Bedwellty.**—PUMPING-STATION, ETC.—Erection of the following:—(1) Pumping-station at Cwmsyfiog; (2) meter-house at Brithdir; (3) meter-house at Tirphil, for the Bedwellty U.D.C. Specifications, etc., at the Surveyor's Office at Aberbargoed. Deposit, £1 1s.

JANUARY 26.—**Harrogate.**—ALTERATIONS, ETC.—Alterations and decorations at the Royal Pump Room for the Corporation. Particulars of Mr. C. E. Rivers, Borough Engineer, Harrogate.

JANUARY 26. — **Portgordon.** — HOUSE. — For various trades in the erection of house at Portgordon for Mr. G. Reid. Specifications, etc., of Mr. W. Hendry, architect, 91, West Church-street, Buckie.

JANUARY 26.—**Treherbert.**—OFFICES.—For the erection of general offices at Fernhill, Treherbert, for the Fernhill Collieries, Ltd. Quantities, etc., of Mr. R. S. Griffiths, M.S.A., architect and surveyor, Tonypendy. Deposit, £1 1s.

JANUARY 26.—**West Hartlepool.**—ADDITIONS.—For alterations and additions to tramway depôt, Cleveland-road, for Corporation. Quantities, etc., of Mr. N. F. Dennis, Borough Engineer, Municipal Buildings. Deposit, £1 1s.

JANUARY 27.—**Aberlour.**—SCHOOL BUILDING.—Various trades required in erection of cookery and manual instruction department at Aberlour Public School. Specifications of Mr. John Wittet, architect, Elgin.

JANUARY 27.—**Leeds.**—BRIDGE.—For the demolition of the existing bridge, and the construction of abutments, jack arches, concreting, and paving work, but no steelwork, for a new 40-ft. wide bridge over Low Beck, Domestic-street, Holbeck, Leeds, for the Corporation. Quantities, etc., of Mr. W. T. Lancashire, City Engineer, Municipal Buildings, Leeds.

JANUARY 27. — **Shoreham.** — SCHOOL. — New public elementary school at Shoreham-by-Sea for West Sussex and Chichester Joint E.C. Quantities, etc., of Mr. Haydn P. Roberts, F.R.I.B.A., County Education Architect, Thurloe House, High-street, Worthing. Deposit, £1 1s.

JANUARY 28. — **Blaydon.** — HOUSES. — Various trades required in the erection of ten houses at Chopwell for Blaydon U.D.C. Particulars at the office of the Surveyor, Council Offices, Blaydon-on-Tyne.

JANUARY 28.—**Darlington.**—SCHOOL.—Erection of an elementary school in St. Paul's-street, Darlington, for the T.C. Quantities, etc., of Mr. George Winter, Borough Surveyor, Town Hall, Darlington. Deposit, £2.

JANUARY 28. — **Flintshire.** — SCHOOLS. — The Flintshire Education Committee invite tenders for the following works:—(1) New school at Sealand to accommodate 342 scholars; (2) alterations to the Mold Junction School to form special subjects room; (3) alterations and extensions to the Coed Talon Council School to form special subjects rooms; (4) tar-paving Coed Talon Council School yard. Specifications, etc., of Mr. Sam. Evans, County Architect, Mold. Deposit, £1 for 1 and 3.

JANUARY 28.—**Glasgow.**—HOUSE, ETC.—For the several works required in connection with the proposed erection of caretaker's house, shelter, and lavatories in Cathkin Braes Park for Corporation of Glasgow. Specifications, etc., at the Office of Public Works, 64, Cochrane-street.

JANUARY 28. — **Goole.** — CONVENIENCE. — Brick urinal in Bridge-street for the Goole U.D.C. Specification of the Surveyor, Goole.

JANUARY 28.—**Manchester.**—PAVILION.—Males' pavilion at Baguley Sanatorium for Manchester Corporation. Specification of the City Architect, Town Hall. Deposit, £2 2s.

JANUARY 28.—**West Molesey.**—STORES.—Erection of coal and other stores, etc., at Isolation Hospital, West Molesey, for the U.D.C. of East and West Molesey. Specification at the Surveyor's office, East Molesey.

JANUARY 28.—**Wood Green.**—PAVILION.—The U.D.C. invite tenders for the erection of a pavilion on the recreation-ground in White Hart-lane. Quantities, etc., of the Engineer and Surveyor to the Council, Mr. C. A. Croxford, Town Hall, Wood Green. Deposit, £1 1s.

JANUARY 29.—**Blackhills.**—COTTAGES.—Various trades required for cottages to be erected at Blackhills for Mr. Thos. North Christie. Specification of Mr. John Wittet, architect, Elgin.

JANUARY 29.—**Cardiff.**—CHURCH.—Completion of St. Luke's Church, Canton, Cardiff, for the Rev. T. J. Richards, Vicar, and Committee. Quantities, etc., of Mr. Geo. E. Halliday, F.S.A., 9, Quay-street, Cardiff.

JANUARY 30. — **Carlisle.** — ALTERATIONS. — For alterations to property in Rickergate and Drovers'-lane, Carlisle. Specification at 41, Rickergate. Messrs. Jennings Bros., Ltd., Castle Brewery, Cockermouth.

JANUARY 30.—**South Shields.**—DISPENSARY.—Erection of a tuberculosis dispensary at the Municipal-buildings, Westoe-road, for the Corporation. Quantities, etc., of Mr. Leslie Rosevear, A.M.Inst.C.E., Borough Engineer, Municipal-buildings, South Shields.

JANUARY 31.—**Duffus.**—SCHOOL.—Various trades for new school buildings, water supply, and drainage at Duffus. Specification of Mr. John Wittet, architect, Elgin.

JANUARY 31. — **Pontlottyn, etc.** — POLICE STATION.—Erection of a new police station at Pontlottyn and alterations and additions to the police station at Bargoed for the Glamorgan Joint Committee. Quantities at Bargoed and Pontlottyn Police Stations respectively, and of Mr. T. Mansel Franklen, Clerk, Glamorgan County Hall, Cardiff.

FEBRUARY 1.—**Taun.**—CHURCH.—Erection of church at Taun, Newmarket, Co. Cork, for the Rev. C. W. Corbett. Specifications, etc., of Mr. S. F. Hynes, F.R.I.B.A., 5, South-mall, Cork.

FEBRUARY 2.—**Ballinderrig.**—SCHOOL.—For the erection and furnishing of National school buildings at Ballinderrig, Co. Galway. Specification, etc., at Taum R.I.C. Barracks, and at the District Office of Public Works, Galway. Mr. H. Williams, Secretary, Office of Public Works, Dublin.

FEBRUARY 2.—**Warrington.**—BOILER-HOUSE, ETC.—Erection of boiler-house, chimney, and alterations at the baths, in Bath-street, for Corporation. Specifications, etc., of the Borough Surveyor.

FEBRUARY 4.—**Heston.**—SCHOOLS.—The Heston and Isleworth U.D. Education Committee invite tenders for the erection of new schools and caretaker's cottage in Alexandra-road, Hounslow. Plans, etc., of Mr. J. G. Carey, Architect and Surveyor, Council House, Hounslow. Deposit, £2 2s.

FEBRUARY 4. — **Long Benton.** — PAVILION.—Permanent isolation pavilion at Scaffold-hill, near Long Benton, for Earsdon Joint Hospital Board. Specifications of Mr. J. R. McMillen, Council Offices, Shiremoor.

* FEBRUARY 4. — **Ramsgate.** — ALTERATIONS TO SCHOOL.—Tenders are invited for alterations and additions to St. George's Schools.

FEBRUARY 5.—**Newton Poppleford.**—HOUSES.—Six houses at Newton Poppleford on a site near the schools, according to the specifications, etc., prepared by Mr. Ernest E. Ellis, architect, Polsloe-road, Exeter, for the St. Thomas R.D.C. Mr. Arthur E. Ward, Clerk to the District Council, 9, Bedford-circus, Exeter. Deposit, £1 1s.

FEBRUARY 6.—**Swaffham.**—COTTAGES.—For erection of three pairs of cottages in each of the parishes of Great Cressingham, Holme Hale, and North Pickenham, for Swaffham R.D.C. Specifications, etc., of Mr. S. Matthews, Clerk, Swaffham, Norfolk. Deposit, £1 1s.

FEBRUARY 7.—**Downpatrick.**—HOUSE.—For the erection of gamekeeper's house, near Downpatrick, for Lord Dunleath. Specifications, etc., of Mr. E. L. Woods, architect, 97, Main-street, Bangor.

FEBRUARY 9. — **Belfast.** — LAVATORIES. — Lavatories at their Belfast terminus for the Great Northern Railway Company (Ireland). Specification, etc., may be inspected at the engineer's offices at Dublin and Belfast. Quantities of Mr. T. Morrison, secretary, Amiens-street Terminus, Dublin. Deposit, £1 1s.

* FEBRUARY 9. — **Hendon.** — ARTISANS' DWELLINGS.—The Hendon U.D.C. invite tenders for erection of fifty artisans' dwellings.

* FEBRUARY 11.—**Tooting Graveney.**—RECEIVING-ROOM.—The Metropolitan Asylums Board invite tenders for erection of receiving-room.

FEBRUARY 11. — **Umberleigh.** — BRIDGE. — Rebuilding in reinforced concrete Umberleigh Bridge over the River Taw, near to Umberleigh Station on the L. & S.W. Railway, for the Devon C.C. Quantities, etc., of Mr. F. Bailey, Clerk of the Council, The Castle, Exeter.

FEBRUARY 11.—**West Worlington.**—BRIDGE.—Rebuilding in reinforced concrete Affeton Mill Bridge over the Little Dart River, near Affeton Castle, in the parish of West Worlington, for the Devon C.C. Quantities, etc., of Mr. F. Bailey, Clerk of the Council, The Castle, Exeter.

FEBRUARY 14.—**Beaconsfield.**—COTTAGES, ETC.—The U.D.C. of Beaconsfield invite tenders for the erection of thirty-four cottages, and the construction of roads and sewers. Specifications, etc., of Mr. H. Sargent, Surveyor, Baring-road, Beaconsfield. Deposit, £3.

* FEBRUARY 16.—**West Ham.**—SCHOOL.—The West Ham E.C. invite tenders for the erection of a school.

* FEBRUARY 18. — **Beckenham.**—SCHOOL.—The Beckenham U.D.C. invite tenders for erection of a school.

FEBRUARY 20.—**Warminster.**—HOSPITAL.—Erection of an isolation hospital and work in connection therewith in the Bradley-road, Warminster, for the Warminster Joint Isolation Hospital Committee. Specifications, etc., of the architect, Mr. C. H. Lawton, 32, High-street, Warminster. Deposit, £2 2s.

* FEBRUARY 25.—**Wilts.**—NEW BUILDING.—The Wilts County Asylum invite tenders for erection of a new building at the asylum.

NO DATE. — **Buckfastleigh.** — Erecting three villa residences, etc., in Lodgers' Park, Buckfastleigh. Specifications, etc., of Mr. Wilfrid J. Goode, architect and surveyor, Buckfastleigh.

NO DATE.—**Llanelly.**—PUBLIC HALL, ETC.—Building a public hall and workmen's institute at the Tumble, for the Tumble Public Hall and Workmen's Institute Company, Ltd. Specifications, etc., of Messrs. W. Griffiths, F.S.I., & Son, architects, Llanelly.

NO DATE.—**South Kirkby.**—HOUSES.—Erection of fifty-six dwelling-houses at South Kirkby, near Wakefield, for the South Kirkby, Featherstone, and Hemsworth Collieries, Ltd. Quantities, etc., of Messrs. Garside & Pennington, architects and surveyors, Pontefract and Castleford. Deposit, £2 2s.

[Those with an asterisk (*) are advertised in this issue.]

ENGINEERING, IRON, AND STEEL.

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

JANUARY 26.—**Chelsea.**—AIR COMPRESSOR.—The Council of the Metropolitan Borough of Chelsea invite tenders for the supply and erection and setting to work of a direct-coupled, steam-driven, two-stage air compressor, the taking-down and re-erecting and setting to work the existing air compressor on another site at the Public Baths, Manor-street, Chelsea. Specification of the Engineer, Mr. Sidney R. Lowcock, M.Inst.C.E., 6, Queen Anne's-gate, Westminster, S.W.

JANUARY 26.—**East Ham.**—FENCING.—Supplying and erecting wrought-iron unclimbable fencing and gates at Church-road Recreation-ground for the East Ham Corporation. Particulars of Mr. J. Birch, Borough Engineer, Town Hall, East Ham.

JANUARY 26.—**Manchester.**—ELECTRIC LIGHTING.—Electric lighting at the Chorlton-cum-Hardy Library for the Corporation. Specification at the office of the City Architect, Town Hall, Manchester. Deposit, £1 1s.

JANUARY 26.—**Withernsea.**—TIMBER GROYNES.—For the erection of two timber groynes on the foreshore at Withernsea for the Withernsea U.D.C. The total length is about 800 ft., and they contain about 204 piles and 2,000 cubic ft. of planking. Specifications, etc., of Mr. John B. Kirton, Engineer to the Council, Council Offices, Withernsea. Deposit, £2 2s.

JANUARY 27.—**London.**—TRAMWAY MATERIAL.—The London C.C. invite tenders by separate contracts for the supply and delivery of (*a*) about 6,300 tons of steel girder tramway track rails and fastenings, and (*b*) about 1,500 tons of slot rails and conductor tees for its tramways. Quantities, etc., of the Chief Engineer, Mr. G. W. Humphreys, at the County Hall, Spring-gardens, S.W. Deposit, £2 each contract.

JANUARY 26.—**Bedlingtonshire.**—PIPES.—For the supply of about 650 yds. of 9-in. cast-iron pipes, spigot and socket, in 12-ft. lengths, coated, delivered at Choppington Station, Northumberland, for the Bedlingtonshire U.D.C. Particulars, etc., of the Surveyor, Mr. J. E. Johnston, Bedlington.

JANUARY 29.—**Burma.**—TOOLS, ETC.—The Directors of the Burma Railways Company, Ltd., invite tenders for the supply of miscellaneous tools and stores. Mr. W. Home, Managing Director, 199, Gresham House, Old Broad-street, London, E.C. Specifications, £1 each set.

JANUARY 29.—**Sheffield.**—DOCK AND SIDING.—Construction of weighbridge office, steel roof to tipping dock 75 ft. by 34 ft., entrance gates, dock walls, fences, and other contingent works at Stevenson-road, Sheffield, for the Corporation. Particulars of the City Engineer, Town Hall, Sheffield. Deposit, 10s.

JANUARY 31.—**Aberdare.**—TRAMCARS.—Four double-deck tramcars for Aberdare U.D.C. Specification of Mr. D. Llewellyn Griffiths, Clerk, Town Hall, Aberdare. Deposit, £1 1s.

JANUARY 31.—**Beath.**—HEATING.—Installation of heating by low-pressure hot water in Foulford Public School, Cowdenbeath, for Beath School Board. Mr. P. M Connell, solicitor, Dunfermline.

JANUARY 31.—**Calne.**—HOT-WATER INSTALLATION.—Provision of hot-water supply at Calne Union Workhouse for the Board of Guardians. Specification of Messrs. Smith & Marshall, St. Mary-street, Chippenham.

JANUARY 31.—**North Berwick.**—PIPES.—About 720 tons of 8-in. diameter dry sand cast-iron pipes and special castings for the North Berwick T.C. Specification, etc., of the engineers, Messrs. J. & A. Leslie & Reid, C.E., 72A, George-street, Edinburgh. Deposit, £1 1s.

FEBRUARY 3.—**Rangoon.**—STEEL PIPES.—The Rangoon Municipality invite tenders for steel pipes. Specification of Messrs. Ogilvy, Gillanders, & Co., Agents, Rangoon Municipality, 67, Cornhill, London, E.C. Deposit of £1 for each set of (four) specifications.

FEBRUARY 3.—**Sheffield.**—STEELWORK.—Structural steelwork for carrying coal shoots, coal bunkers, and railway sidings over same at the Neepsend power-house, Sheffield, for the Corporation. Mr. S. E. Fedden, M.Inst.C.E., General Manager and Engineer, Commercial-street, Sheffield. Deposit £1 1s.

FEBRUARY 9.—**Dublin.**—IRON BUILDING.—Erection of a steel-framed shed, 42 ft. by 25 ft., covered with corrugated-iron, for the Great Northern Railway Company (Ireland). Particulars of Mr. T. Morrison, Secretary's Office, Amiens-street Terminus, Dublin. Deposit, £1 1s.

FEBRUARY 19.—**Wallasey.**—RAILWAY SIDING AND MATERIALS.—For the construction of a short length of railway siding, also the supply and delivery of 20 tons of 65-lb. rails and 250 standard creosoted sleepers, at the Gasworks, Dock-road, Wallasey, for the Corporation. Specification, etc., of the Engineer, Mr. J. H. Crowther, at his office at the works.

APRIL 2.—**Calcutta.**—WASHING PLANT.—The Corporation of Calcutta invite tenders for the supply of a complete steam washing and cleaning plant (capacity of machine in shirts, 150) for one of the public washhouses in Calcutta. Mr. C. C. Chatterjee, Secretary to the Corporation, Municipal Office, Calcutta.

NO DATE.—**Accrington.**—TRAMCARS.—Two double-deck top-covered tramcars and three single-deck tramcars for the Corporation. Specification of Mr. Harry Pilling, Tramways and General Manager, Market Hall-buildings, Accrington. Deposit, £1 1s.

NO DATE.—**Salford.**—LIFTS.—Electric dinner lifts at the Salford Town Hall for the T.C. Particulars of Mr. J. B. Broadbent, A.R.I.B.A., of 15, Cooper-street, Manchester.

FURNITURE, PAINTING, MATERIALS, etc.

JANUARY 26.—**Cheriton.**—ROAD MATERIAL.—For supply of 500 tons of broken roadstone, and 100 yds. of broken Kent rag. Particulars from Mr. A. Sherren, Surveyor, Cheriton, Kent.

JANUARY 26.—**Claypole.**—ROAD MATERIAL.—The R.D.C. of Claypole invite tenders for about 1,850 tons of granite and 1,200 tons of slag. Particulars of the District Surveyor, Mr. P. A. Watford, 13, Milner-street, Newark.

JANUARY 26.—**Cuckfield.**—ROAD MATERIAL.—The Cuckfield R.D.C. invite tenders for the supply of about 6,500 tons of broken granite, tarred material, and flints. Particulars of Mr. A. Macarthur, C.E., Surveyor, Council Offices, Haywards Heath.

JANUARY 26.—**Keighley.**—PAINTING.—Interior painting at the administrative portion of the Morton, Berks, Hospital for the Keighley and Bingley Joint Hospital Board. Quantities of the architects, Messrs. Moore & Crabtree, York-chambers, Keighley.

JANUARY 26.—**Sleaford.**—GRANITE, ETC.—Granite and slag for district roads, and gravel for footpaths, for the year ending March 31, 1915, for the Sleaford R.D.C. Specifications, etc., of Mr. Edmund Clements, Clerk, 74, Southgate, Sleaford.

JANUARY 27.—**Brackley.**—ROAD MATERIALS.—Supply of granite and slag for the Brackley R.D.C. Specifications, etc., of Mr. W. C. Robson, District Surveyor, Helmdon, Brackley.

JANUARY 27.—**Leyton.**—PAINTING, ETC.—The Leyton U.D.C. invite tenders for painting and decorating the Central Library, High-road, Leyton, and the Leytonstone Public Library. Specification, etc., of Mr. E. N. Essex, Engineer, Town Hall, Leyton.

JANUARY 27.—**Middleton Cheney.**—GRANITE.—Best Hartshill or other granite for Middleton Cheney R.D.C. Specifications, etc., of Mr. W. C. Robson, District Surveyor, Helmdon, Brackley.

* JANUARY 27.—**Willesden.**—ANNUAL CONTRACTS.—The Willesden U.D.C. invite tenders for supply of certain materials and execution of works for one year.

JANUARY 28.—**Birmingham.**—TAR.—For the supply of about 1,500 tons of coal-gas tar, to be delivered during the coming spring and summer, for the Corporation. Specification, etc., of Mr. Henry E. Stilgoe, M.Inst.C.E., City Engineer and Surveyor, The Council House, Birmingham.

JANUARY 26.—**Erith.**—MATERIALS.—The Erith U.D.C. invite tenders for the supply of materials, etc., during the year ending March 31, 1915, including granite, flints, ballast and sand, bricks, tar-paving, granite setts, cement, drain pipes, ironmongery, etc. Forms of tender of Mr. Jno. Atkinson, Clerk, Council Offices, Erith, Kent.

JANUARY 28.—**Ramsgate.**—GRANITE CHIPPINGS.—The Corporation invite tenders for the supply of about 500 tons of clean ¾-in. granite chippings. Form of tender of Mr. T. G. Taylor, Borough Engineer, Borough Engineer's Office, Albion House, Ramsgate.

JANUARY 29.—**Brixworth.**—ROAD MATERIALS.—Supply of granite, etc., for the R.D.C. Mr. W. C. Woodford, Clerk, 31, Market-square, Northampton.

* JANUARY 29.—**Kensington.**—WARD LOCKERS.—The Kensington Guardians invite tenders for thirty-two Canadian birchwood ward lockers.

JANUARY 30.—**Grimsby.**—MATERIALS.—The Corporation invite tenders for twelve months' supply of materials, including road materials, granite setts, paints, oils, etc. Specifications of Mr. H. G. Whyatt, Borough Engineer, Municipal Buildings, Grimsby.

JANUARY 31.—**Bridgwater.**—STONE.—The Bridgwater R.D.C. invite tenders for the supply of stone for the roads within the district for one year from April 1, 1914, to March 31, 1915. Forms of tender of the Council's Surveyor, Mr. W. A. Collins, 56A, Eastover, Bridgwater.

JANUARY 31.—**Cheltenham.**—STORES.—The Cheltenham Corporation invite tenders for Portland cement, stoneware pipes, broken stone, kerbs and setts, colours, etc.; ironmongery, timber, tools for highways, etc.; electric light fittings, etc. Forms of tender of Mr. J. S. Pickering, Borough Engineer, Municipal Offices, Cheltenham.

JANUARY 31.—**Escrick.**—ROAD MATERIALS.—Supply of best whinstone, tar macadam, slag, and granite for the Escrick R.D.C. Forms of tender of Mr. Fred A. Camidge, Clerk to the Council, 3, Stonegate, York.

JANUARY 31.—**New Romney.**—FENCING.—For oak fencing for the Corporation. Mr. W. Lamacraft, Town Clerk, Town Hall, New Romney.

JANUARY 31.—**Wells.**—ROAD MATERIALS.—The Somerset C.C. invite tenders for the supply of broken granite or basalt required for the main roads in the Long Ashton Rural District during the year ending March 31, 1915. Specifications, etc., of Mr. H. T. Chapman, County Surveyor, County Surveyor's Office, Wells, Somerset.

JANUARY 31.—**Witney.**—ROAD MATERIAL.—The Witney R.D.C. invite tenders for the supply of the best 2-in. clean, broken Clee Hill, Hartshill, Mendip, Pyx, and Rowley Regis granites. Forms of tender from the District Surveyors, Mr. G. Mallis, Brampton, Oxon, and Mr D. H. W. Powell, Brizenorton, Oxon.

JANUARY 31.—**Worcester.**—ROAD MATERIALS.—The Worcestershire C.C. invite tenders for the supply of granite during the year ending March 31, 1915. Forms of tender of Mr. C. F. Gettings, County Surveyor, Shirehall, Worcester.

FEBRUARY 2.—**Leeds.**—MATERIALS.—Supply of materials, including sand, pea gravel, shovels, forks, drags, etc.; bolts, nuts, screws, and sundries; lime, oil, paints etc., for the Sanitary Committee of the Corporation. Particulars from Mr. J. J. Mann, Superintendent, Dock-street Depôt, Leeds.

FEBRUARY 2.—**York.**—MATERIALS.—Twelve months' supply of castings (iron and brass), gravel and sand, iron and steelware, ironmongery, lime, oils and paints, plastering materials, plumbing materials, etc., for the Corporation. Forms of tender, etc., at the City Engineer's Office.

FEBRUARY 3.—**Leeds.**—LIME.—About 2,500 tons rich burnt lime, for precipitation purposes, delivered at Knostrop Sewage Works, for the Leeds Corporation. Specifications at the Sewerage Engineer's Office, Great George-street, Leeds.

FEBRUARY 3.—**Lewisham.**—MATERIALS.—The B.C. invite tenders for twelve months' supply of stores, including sewer ironwork, road materials, artificial stone, tools, timber, etc. Specification, etc., at the Town Hall, Catford.

FEBRUARY 4.—**Hammersmith.**—ELECTRICITY STORES.—One year's supply of general electricity stores for Hammersmith B.C. Particulars of Mr. G. G. Bell, Borough Electrical Engineer, 85, Fulham Palace-road, W.

FEBRUARY 4.—**Middlesex.**—ROAD MATERIAL.—The C.C. of Middlesex invite tenders for the supply of about 12,000 tons of 2-in. and 1½-in. hand-broken basalt for road construction, and 2,000 tons of ¼-in. chippings. Particulars of Mr. H. T. Wakelam, County Engineer, County Engineer's Office, Middlesex Guildhall, Westminster, S.W.

FEBRUARY 5.—**Hatfield.**—ROAD MATERIALS.—The Hertfordshire C.C. invite tenders for granite, slag, and tar-macadam. Forms of tender of Mr. Urban A. Smith, M.Inst.C.E., County Surveyor, County Surveyor's Office, Hatfield, Herts.

FEBRUARY 5.—**Stokesley.**—ROAD MATERIALS.—For whinstone and limestone and for tarred slag and whinstone, for the Stokesley R.D.C. Particulars of Mr. W. H. Dixon, District Surveyor, Kirkby-in-Cleveland, near Stokesley, Yorkshire.

* FEBRUARY 6.—**West Ham.**—MATERIALS, ETC.—The County Borough of West Ham invite tenders for supply of materials, stores, etc.

FEBRUARY 7.—**Blackburn.**—MATERIALS, ETC.—The Corporation invite tenders for materials, tools, etc., for a period of twelve months, including paving setts, flags, ashlar, lime, granite chippings, dust, cement, gravel and sand, bricks and puddle, earthenware pipes, etc., pitch, calcium carbide, iron castings, timber, paints, etc. Specifications of Mr. William Stubbs, A.M.Inst.C.E., Borough and Water Engineer, Municipal Offices, Blackburn.

FEBRUARY 9.—**Leeds.**—WATERWORKS' STORES.—For year's supply of cast-iron pipes (2 in. to 24 in. diameter), sluice valves (3 in. to 9 in. diameter), oils, iron castings, fire hydrants, and ironmongery, for Leeds Corporation. Specifications at the Waterworks Engineer's Office, Great George-street, Leeds.

FEBRUARY 9.—**Northwich.**—MATERIALS.—For building materials (except timber), oils and grease, paints, varnishes, ironmongery, iron and steel bars, cast steel, files, etc., for the Trustees of the River Weaver Navigation. Schedule of quantities, etc., of Mr. J. A. Saner, M.Inst.C.E., Engineer, Weaver Navigation, Northwich. Deposit, £1.

FEBRUARY 10.—**Littleborough.**—GRANITE SETTS.—Supply of 3,700 tons of 4-in. by 5-in. granite setts for the U.D.C. Forms of tender of Mr. George H. Wild, Surveyor, Council Office, Littleborough.

FEBRUARY 11.—**Birmingham.**—STORES.—Year's supply of iron, steel, and tools; ironmongery; oils, pants; timber, bricks, tiles, etc.; Portland cement and lime; electrical stores, and miscellaneous goods, for the Birmingham Tame and Rea District Drainage Board. Specifications, etc., of Mr. John D. Watson, M.Inst.C.E., Engineer, Drainage Board Offices, Tyburn, Birmingham.

FEBRUARY 11.—**Bradford.**—MATERIALS.—The Bradford Corporation invite tenders for road metal, cement, pitch and oil; cast-iron gullies, ventilators, and storm grates; glazed earthenware pipes, blocks, and junctions, timber, etc. Forms of tender of Mr. W. H. S. Dawson, City Engineer and Surveyor, at the Town Hall.

FEBRUARY 14.—**Folkestone.**—MATERIALS.—The Corporation invite tenders for the supply, for the period of one year, of broken Kentish blue rag, broken flints, quartzite or granite macadam, Portland cement, cast-iron goods, iron and ironmongery, paint, varnish, etc., oils and turpentine, glass, timber, etc. Particulars of Mr. A. E. Nichols, M.Inst.C.E., Borough Engineer, Municipal Offices, Folkestone.

FEBRUARY 14.—**Northampton.**—MATERIALS.—The Corporation invite tenders for materials for a period of twelve months ending March 31, 1915, including broken granite; granite kerb, setts, etc.; artificial stone paving; stoneware pipes, gullies, etc.; Portland cement and lime; ironmongery; tar-paving, tar-macadam; blue bricks, local lime, gravel, and sand; iron castings, timber, etc. Specifications of Mr. Alfred Fidler, M.Inst.C.E., Borough Engineer, Guildhall, Northampton.

FEBRUARY 16.—**Surbiton.**—MATERIALS.—Twelve months' supply of materials, including Guernsey granite, concrete paving flags, lime and Portland cement, cast-iron goods, tools, etc., Kent flints, gravel, Thames ballast, etc., for the U.D.C. Tender forms from the Surveyor, Council Offices, Ewell-road, Surbiton.

FEBRUARY 17.—**Thorne.**—ROAD MATERIALS.—Supply of dross, screenings, granite, and tar for twelve months from April 1, 1914, for the Thorne R.D.C. Specifications, etc., of the Clerk, at South-parade, Thorne, near Doncaster.

* FEBRUARY 18.—**London.**—WINDOW CLEANING.—The Commissioners of H.M. Works invite tenders for window cleaning.

[Those with an asterisk (*) are advertised in this issue.]

FURNITURE, etc.—*continued.*

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

FEBRUARY 21.—**Gosforth.**—MATERIALS.—The Gosforth U.D.C. invite tenders for the supply of broken whinstone, setts and chips, granite kerb, cement concrete flags, sanitary ironwork, sanitary pipes, and street name plates, for a period of twelve months from April 1, 1914. Particulars of the Engineer and Surveyor, Mr. George Nelson, A.M.Inst.C.E., Council Chambers, High-street, Gosforth.

FEBRUARY 23.—**Little Hulton.**—MATERIALS.—The Little Hulton U.D.C. invite tenders for the supply of broken granite, granite setts, granite and limestone chippings, grit kerbs, stoneware pipes and gullies, cement, steam road rolling and scarifying, disinfectants, pitch and oil, and hardware. Forms of tender of Mr. James H. Heyes, Clerk, Council Offices, Little Hulton, near Bolton.

No DATE.—**Edinburgh.**—TAR.—For the supply of refined coal-tar, coal-tar pitch, and pitch oil, for the year 1914 for the Midlothian C.C. Schedules of Mr. Robert Moir, County Road Surveyor, County Buildings, Edinburgh.

No DATE.—**Fulham.**—PAINTING.—Redecorating laundry and boiler-house in Workhouse, Fulham Palace-road, W. Particulars of the Clerk to the Fulham Guardians, 129, Fulham Palace-road, S.W.

No DATE.—**Salford.**—FURNITURE.—For furniture, seating, etc., for the new Sessions Court and the Lay Magistrates' Court at the Salford Town Hall. Quantities from Mr. J. B. Broadbent, A.R.I.B.A., 15, Cooper-street, Manchester. Deposit, £1 1s.

No DATE.—**Salford.**—LIME.—About 500 tons of lime required for the purification of gas for the Salford Corporation. Particulars from Mr. William W. Woodward, Engineer, Gas Offices, Bloom-street, Salford.

ROAD, SANITARY, AND WATER WORKS.

JANUARY 26.—**Chesterfield.**—WATERWORKS.—The Chesterfield R.D.C. invite tenders for the laying and jointing of 3,834 yds., or thereabouts, of 5-in. cast-iron pipes from Tupton to Temple Normanton. Specifications, etc., of Mr. Gilbert Frith, Waterworks Engineer, R.D.C. Offices, Chesterfield. Deposit, £1 1s.

JANUARY 26.—**Cleethorpes.**—SEWERAGE.—The Cleethorpes U.D.C. invite tenders for the following:—About 340 tons of 30-in. diameter cast-iron turned and bored pipes, sluice valves, sewer penstocks, and other articles which may be required during the construction of the works. Particulars of Mr. James McKie, M.Inst.C.E., Resident Engineer, Council House, Cleethorpes.

JANUARY 26.—**Romford.**—ROADS.—The Romford U.D.C. invite tenders for works of fencing and road improvement in Hornchurch and Oldchurch roads, within the urban district of Romford. Quantities, etc., of Mr. Herbert T. Ridge, at the Council Offices, Market-place, Romford. Deposit, £2 2s.

JANUARY 27.—**Newburn.**—SANITARY.—Conversion of about fifty privies and ashpits into water-closets and dry ash receptacles at Newburn-on-Tyne for the U.D.C. Specifications from Mr. Thomas Gregory, Surveyor, Council Offices, Newburn.

JANUARY 27.—**Newton Abbot.**—ROADS.—The Newton Abbot R.D.C. invite tenders for draining, ballasting, and resurfacing the road leading from Harcombe House to near the Toll Bar, in the parish of Chudleigh, the distance being about 1,850 yds. Specifications of Mr. W. Olver, Surveyor, Clifford Villa, Newton Abbot.

JANUARY 27.—**Southall.**—STREET WORKS.—The Southall-Norwood U.D.C. invite tenders for making-up Randolph-road, The Crescent, and part of Beaconsfield-road. Quantities, etc., of Mr. Reginald Brown, M.Inst.C.E., F.S.I., etc., Engineer and Surveyor, Town Hall, Southall.

JANUARY 27.—**Southall.**—STREET WORKS.—The Southall-Norwood U.D.C. invite tenders for the making-up of the following roads:—Saxon-road (part), Shackleton-road, Lady Margaret's-road (part), Leonard-road, Tachbrooke-road, Queen's-road (part), Beaconsfield-road (part), Balfour-road (part). Quantities, etc., of Mr. Reginald Brown, M.Inst.C.E., F.S.I., etc., Engineer and Surveyor, Town Hall, Southall.

JANUARY 27.—**Southampton.**—SEWERS, ETC.—Separate tenders for constructing a storm-water sewer, manholes, and other works incidental thereto (1) in Brookvale-road, and (2) at Bitterne-park, for the Southampton Corporation. Quantities, etc., at the Borough Engineer's Office, Municipal Offices, Southampton. Deposit, £1 1s. for each tender.

* JANUARY 27.—**Willesden.**—ROAD-MAKING, ETC.—The Willesden U.D.C. invite tenders for road-making and paving.

JANUARY 27.—**Wimbledon.**—STREET WORKS.—The Corporation of Wimbledon invite tenders for making-up of both or either of the following streets, namely, Wilton-grove and Compton-road (section II.). Specification, etc., at the office of the Borough Engineer and Surveyor, Town Hall, Wimbledon.

JANUARY 28.—**Tring.**—SEWER.—Laying about 300 yds. of 9-in. stoneware pipe sewer, etc., for the Tring U.D.C. Specification, etc., of Mr. S. S. Geetings, Surveyor, Tring. Deposit, 10s. 6d.

JANUARY 30.—**Edinburgh.**—PAVING, ETC.—Demolition of old buildings, building boundary and retaining walls, laying cement paving, and incidental works in connection with the formation of a playground, and widening of the roadway at Dean Path for the Edinburgh T.C. Specification, etc., of Mr. A. H. Campbell, M.Inst.C.E., Burgh Engineer.

JANUARY 31.—**Blackpool.**—ROADS.—Laying-out of the Upper Promenade from the Glynn to the northern boundary of the borough for the Corporation. Quantities, etc., of Mr. John S. Brodie, M.Inst.C.E., Borough Engineer, Municipal Buildings, Market-street, Blackpool. Deposit, 10s. 6d.

JANUARY 31.—**Halifax.**—STREET WORKS.—Setting back streets and remacadamising front street at Wyvern-place, Pellon, Halifax. Quantities, etc., of Messrs. Medley Hall & Son, architects and surveyors, 1, Harrison-road, Halifax.

JANUARY 31.—**Stourbridge.**—SEWER.—Construction of about 792 yds. of 6-in. cast-iron pipe sewer, etc., at Lye, near Stourbridge, for the Upper Stour Valley Main Sewerage Board. Quantities, etc., of Mr. W. Fiddian, engineer, Stourbridge. Deposit, £2 2s.

JANUARY 31.—**Wells.**—STEAM-ROLLING.—The Somerset C.C. invite tenders for steam-rolling and scarifying required on main roads in the Long Ashton Rural District during the year ending March 31, 1915. Specifications of Mr. H. T. Chapman, County Surveyor, County Surveyor's office, Wells, Somerset.

FEBRUARY 2.—**Droxford.**—ROLLING, ETC.—For the hire of steam-rollers and scarifiers for use on the district roads during the period ending March 31, 1915, for the Droxford R.D.C. Forms of tender of Mr. A. V. Carter, Surveyor, Droxford, Hants.

* FEBRUARY 2.—**Hendon.**—ROAD-MAKING, ETC.—The Hendon U.D.C. invite tenders for certain road-making, etc.

FEBRUARY 2.—**Holbeck.**—ROADS.—The Blyth and Cuckney R.D.C. invite tenders for widening and improving the highway through Holbeck. Specifications, etc., of Mr. Frederick Hopkinson, Surveyor, 66, Bridge-street, Worksop.

FEBRUARY 2.—**Malton.**—WATER SUPPLY.—Supply and laying of about 3,700 yds. cast-iron mains, with hydrants and other apparatus, and the construction of a collecting tank for the Norton (Malton) R.D.C. Specifications at the office of the Clerk to the Council, Malton.

FEBRUARY 2.—**New Malden.**—SEWAGE DISPOSAL.—The Maldens and Coombe U.D.C. invite tenders for additions to their sewage-disposal works. Specification, etc., of the Engineer and Surveyor, Mr. R. H. Jeffes, A.M.Inst.C.E., at the Municipal Offices, New Malden. Deposit, £3 3s.

FEBRUARY 2.—**Port-Glasgow.**—ROADS.—For paving, tar-macadam, and other work at Station road and lane, Victoria and George streets, Port-Glasgow, for the Corporation. Specifications, etc., of Mr. Andrew Paton, Town Clerk, Port-Glasgow.

[Those with an asterisk (*) are advertised in this issue.]

CHANCE BROTHERS & Co., Ltd.,

Glass Works, near BIRMINGHAM.

Branch Works, GLASGOW.

WINDOW GLASS

OF ALL DESCRIPTIONS.

Specialities for High-Class Work:

FLEMISH GLASS. EXTRA WHITE DOUBLE ROLLED CAST.

The Whitest Roofing Glass.

Sole Manufacturers of Old English Crown Glass and Genuine Crown Bullions.

VITREOUS TILES and MOSAIC

For Floors, Walls, Ceilings, etc.

Durable in character, possessing artistic merit, Non-absorbent, free from Crazing and permanent in Colouring.

SAMPLES ON APPLICATION.

ROADS, etc.—*continued*

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

FEBRUARY 3.—**Lewisham.**—STREET WORKS.—The B.C. invite tenders for kerbing, channelling, and metalling the roadway, etc., and for paving the footpaths with artificial stone (in two contracts) of Grove Park-road, Lewisham. Specifications, etc., at the Surveyor's Department, Town Hall, Catford, S.E.

FEBRUARY 3.—**Marlborough.**—WATERWORKS.—The T.C. invite tenders for building a brick and concrete watertight covered service reservoir, having a capacity of 120,000 gallons; the erection of a coal store at the pumping-station, and for other incidental work. Drawings, etc., at the offices of the engineers, Messrs. Everard, Son, & Pick, 6, Millstone-lane, Leicester. Deposit, £2 2s.

FEBRUARY 4. — **Oldham.** — SANITARY. — Two hundred wash-down water-closets, cisterns, and fittings for the Oldham Corporation. Specification at the office of the Borough Surveyor.

FEBRUARY 4.—**Scunthorpe.**—WATERWORKS.—The Scunthorpe U.D.C. invite tenders for the sinking of a pump well, 12 ft. clear internal diameter by about 60 ft. deep, the driving of adits, and the sinking of boreholes. Quantities, etc., of Mr. C. Curtis Gray, Engineer and Surveyor, Council Offices, High-street, Scunthorpe, Lincs. Deposit, £2 2s.

FEBRUARY 5. — **Porthcawl.** — SEWERS. — Construction of stoneware and iron sewers of 9, 12, and 21 in. diameter, and concrete tube sewers of 10 in. in diameter, with the necessary manholes, flushing tanks, and other appurtenances, for the Porthcawl U.D.C. Specification of Messrs. John Taylor & Sons, Civil Engineers, Caxton House, Westminster, S.W. Deposit, £5.

FEBRUARY 5. — **Southport.** — SEWERAGE.—Construction of storm overflow sewer, concrete storm-water tank to hold 500,000 gallons, and other works appertaining thereto for the Corporation. Specification, etc., at the Borough Engineer and Surveyor's Office, Town Hall, Southport. Deposit, £3 3s.

FEBRUARY 6.—**Appleby.**—Excavating for, providing, and laying about three miles of 2-in. and 3-in. cast-iron pipes, and the construction of a reservoir and collecting tank, etc., in connection with a scheme of water supply for the parishes of Crakenthorpe and Long Marton, Westmorland. Quantities, etc., of the Engineer, Mr. Alfred Knewstubb, St. Andrew's-chambers, Penrith. Deposit, £1 1s.

FEBRUARY 9. — **Pontypridd.** — WATERWORKS.—The Pontypridd and Rhondda Joint Water Board having determined to postpone the carrying-out of the works of completion in connection with the storage reservoirs at Mardy (tenders for which were advertised for a few months ago) until such a period as would enable the works to be carried out and entirely completed during the summer months, now invite tenders from contractors having experience in reservoir construction. Specification, etc., at the office of the Engineer to the Board, 27, Gelliwastad-road, Pontypridd. Deposit, £2 2s.

FEBRUARY 14. — **Halifax.**—SEWER.—Construction of about 1,970 lin. yds. of 24-in., 18-in., and 15-in. diameter cast-iron pipe sewer and appurtenances in the bed of the Hebble Brook from the electricity works to Shroggs Wire Works. Specifications, etc., of Mr. James Lord, M.Inst.C.E., Borough Engineer, Town Hall, Halifax. Deposit, £10.

FEBRUARY 14.—**Tenterden.**—MAIN DRAINAGE.—The Corporation of Tenterden invite tenders for the construction of about five miles of stoneware and iron pipe intercepting sewers, and other works, in accordance with plans and specification prepared by Messrs. John Taylor & Sons, civil engineers, Caxton House, Westminster. Deposit, £5.

NO DATE.—**Yeovil.**—STREET WORKS.—Making-up Garfield and Glenville roads for the Corporation. Quantities, etc., of Mr. A. Oddy, Borough Surveyor, Yeovil. Deposit, £1 1s.

Auction Sales.

* JANUARY 26.—**New North-road.**—Mr. H. W. Smith will sell by auction, on the premises, the stock and plant of a builder and contractor.

* JANUARY 28.—Messrs. Churchill & Sim will sell by auction, at the Great Hall, Winchester House, Old Broad-street, E.C., an assortment of deals, battens, boards, timbers, etc.

* FEBRUARY 2.—**Highbury Corner.**—Messrs. Veryard & Yates will sell by auction, on the premises, a quantity of building material.

* FEBRUARY 3.—**New Malden and Walthamstow.**—Messrs. Nightingale, Phillips, & Page will sell by auction, at the Mart, freehold shop and cottage plots.

* FEBRUARY 11.—**Greenford.**—Messrs. S. Walker & Son will sell by auction, at the Mart, a freehold factory and warehouse.

* FEBRUARY 17.—**Oxted.**—If not previously disposed of, Messrs. Harrods will sell by auction a family residence and grounds.

[Those with an asterisk (*) are advertised in this issue.]

LEGAL CORRESPONDENCE COLUMN.

Note.—Answers to inquiries in this column are furnished gratuitously, and strictly on the understanding that no legal liability or responsibility of any kind is accepted or incurred thereby. Correspondents who desire to make use of this column, while supplying their names and addresses in full to the Editor, should also give a nom de plume *under which the inquiry can be answered.*

FIRST ATTEMPT.—(1) We fear that without seeing your contract and letter it is impossible to say definitely whether the architect is bound by the letter handed to him before you signed the contract to make up the statement on the prices in your schedule. (2) Your final statement should be based on the prices given in your schedule, although the totals are not carried out correctly. (3) The terms of the contract probably bind you to accept the methods of the surveyor; but, subject to the contract, all extra work would have to be measured on the same principle as the quantities are drawn out and priced. (4) *Prima facie* you would be responsible for any difference caused by your own mistakes. So far as those mistakes were of a clerical nature, or were otherwise patent and obvious, it would hardly lie with the architect to say that he was misled by them, and compel you to revise your schedule. None of these questions, however, can be reliably answered without reference to the exact terms of the contract.

X. Y.—If you did not know, when you agreed to the nomination of the arbitrator in question, that he was at the time acting professionally for your opponent, you have good ground for refusing to proceed with the arbitration. The Court would not enforce the agreement.

DILAPIDATIONS.—The schedule served is clearly not a sufficient compliance with the terms of sect. 14 of the Conveyancing Act, and there is, in our opinion, a good defence to the landlords for proceeding.

LAW REPORTS.

KING'S BENCH DIVISION.

(Before Mr. Justice RIDLEY.)

London Builders Sued:

E. Pollard & Co., Ltd. *v.* Kirk & Kirk, Ltd.

THIS case was heard on January 17, it being an action brought by Messrs. E. Pollard & Co., Ltd., of Clerkenwell-road, London, shop front fitters, etc., against Messrs. Kirk & Kirk, Ltd., builders, of Exeter-street, Westminster, for £100 5s. balance on account.

Mr. Talbot appeared for the plaintiffs, and Mr. McCurdy for the defendants.

Mr. Talbot said that the plaintiffs carried out the work at No. 181, Commercial-road, where the defendants were carrying out a contract for a building owner in January last year. The total bill was for £160 5s., but £60 had already been paid, leaving £100 5s. still due. This sum had been paid into Court. The work was properly executed by the plaintiffs, and certified for by the architect, but he (Counsel) understood that it was now put forward by the defendants that by a term in their agreement with the plaintiffs they (the plaintiffs) were not to be paid until the building owner's architect had certified for all the work comprised in the defendants' original contract, the shopfitting portion of which had been sub-contracted to the plaintiffs. The term relied upon read as follows:—"Payment to be made to you upon the certificate of the architect, such certificate to be embodied in one to ourselves."

The plaintiffs denied that they ever accepted such a term.

Mr. McCurdy said that his defence was that his clients had not received the certificates, which were a condition precedent to any liability under the agreement until the writ was issued in the action.

Mr. Justice Ridley, in giving judgment for the plaintiffs, with costs, said that, as far as he could see, there was no answer to the action whatever, and no justification for the defendants keeping the plaintiffs out of their money when they had done the work properly and the architect had given the necessary certificates in respect of it.

KING'S BENCH DIVISION: DIVISIONAL COURT.

(Before Mr. Justice RIDLEY and Mr. Justice BANKES.)

Builder's Suicide Recalled: Lyon *v.* Waller & King.

THEIR Lordships, on the 15th inst., heard an *ex parte* application by Mr. Rayner Goddard (for the defendants) in the case of Lyon *v.* Waller & King, for an order in the nature of a mandamus, calling upon Judge Gye and the Registrar at the Southampton County Court to show cause why they should not issue an interpleader process at the instance of the defendants.

The circumstances, said Counsel, were exceptional, because both the Judge and the Registrar seemed to have taken the view that, although this was an application by the defendants in the County Court, they should not issue the interpleader process, because they thought the action should have been brought in the High Court. Some years ago, continued Mr. Rayner Goddard, a builder in Southampton named Franklin committed suicide, and it was found that he had been the perpetrator of an extraordinary number of frauds by issuing numerous mortgages in respect of the same property by means of false deeds. A meeting of solicitors representing various people claiming to be mortgagees was held, among them the plaintiff in this case, and it was decided that Messrs. Waller & King should be appointed to act as receivers of the property pending the clearing up of this very complicated estate. Mr. Lyon, thinking he had the best title to certain of the rents, issued a summons in the County Court, claiming £100 in respect of rent collected by Messrs. Waller & King from the houses in question. Messrs. Waller & King quite properly gave notice to other persons claiming to be entitled to the rents, and eight other people claimed. An application was accordingly made to the Registrar for leave to issue an interpleader process. The Registrar referred the matter to the Judge, who took up the position that it was a question which ought to be dealt with in the High Court, and that any actions arising out of the Franklin frauds ought to be dealt with in the High Court. His Honour also said the action ought to be settled, and that if it were not he would adjourn it *sine die* when it came before him.

Their Lordships granted the application.

NOTICES.

Tel., 6113 Gerrard. Telegrams, "The Builder, London."

THE INDEX (with TITLE-PAGE) for VOLUME CV. (July to December, 1913) was given as a supplement with the issue for January 9.

CLOTH CASES for binding the Numbers can be obtained, price 2s. 6d. each; also

READING CASES (Cloth), with Strings, price 9d. each.

THE HUNDRED AND FIFTH VOLUME of "The Builder" (bound), price Twelve Shillings and Sixpence, is now ready.

SUBSCRIBERS' VOLUMES, on being sent to the Office, will be bound at a cost of 3s. 6d. each.

CHARGES FOR ADVERTISEMENTS.

COMPETITIONS, CONTRACTS, ALL NOTICES ISSUED BY CORPORATE BODIES, COUNTY AND OTHER COUNCILS, PROSPECTUSES OF PUBLIC COMPANIES, SALES BY TENDER, LEGAL ANNOUNCEMENTS, etc., etc.

Six lines or under ..... 6s. 0d.
Each additional line ..... 1s. 0d.

SITUATIONS VACANT, PARTNERSHIPS, APPRENTICESHIPS, TRADE AND GENERAL ADVERTISEMENTS.

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Terms for series of Trade advertisements, and for front page and other special positions, on application.

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Four lines (about thirty words) or under ..... 2s. 6d.
Each additional line (about ten words) ..... 0s. 6d.

PREPAYMENT IS ABSOLUTELY NECESSARY.

*** Stamps must not be sent; but all sums should be remitted by Postal Orders, payable to THE BUILDER LTD., to the office, 4, Catherine Street, Aldwych, W.C.

Advertisements for the current week's issue are received up to ONE p.m. on THURSDAY, but "Classification" is impossible in the case of any which may reach the Office after TWELVE NOON on that day. Those intended for the Outside Wrapper should be in by TWELVE NOON on WEDNESDAY.

ALTERATIONS IN STANDING ADVERTISEMENTS or ORDERS TO DISCONTINUE same must reach the Office before TEN o'clock on WEDNESDAY MORNING.

The Publishers cannot be responsible for DRAWINGS, TESTIMONIALS, etc., left at the Office in reply to advertisements, and strongly recommend that of the latter COPIES ONLY should be sent.

ADVERTISERS in "THE BUILDER" may have *Replies addressed to the Office*, 4, Catherine Street, Aldwych, W.C., *free of charge*. Letters will be forwarded if addressed envelopes are sent, together with sufficient stamps to cover the postage. Unused stamps are returned to advertisers the week after publication.

N.B.—The Reply Boxes are not intended for trade lists, circulars, and the like; should these be received, they cannot (if noticed) be forwarded.

AN EDITION Printed on THIN PAPER, for FOREIGN and COLONIAL CIRCULATION, is issued every week.

READING CASES NINEPENCE EACH. By post (carefully packed), 1s.

TO CORRESPONDENTS.

NOTE.—All communications with respect to literary and artistic matters should be addressed to "THE EDITOR" (and not to any person by name); those relating to advertisements and other exclusively business matters should be addressed to THE BUILDER LTD., and not to the Editor.

All communications must be authenticated by the name and address of the sender, whether for publication or not. No notice can be taken of anonymous communications.

The responsibility of signed articles, letters, and papers read at meetings rests, of course, with the authors.

We cannot undertake to return rejected communications; and the Editor cannot be responsible for drawings, photographs, manuscripts, or other documents, or for models or samples sent to or left at this office, unless he has specially asked for them.

All drawings sent to or left at this office for consideration should bear the owner's name and address on either the face or back of the drawing. Delay and inconvenience may result from inattention to this.

Any commission to a contributor to write an article, or to execute or lend a drawing for publication, is given subject to the approval of the article or drawing, when received, by the Editor, who retains the right to reject it if unsatisfactory. The receipt by the author of a proof of an article in type does not necessarily imply its acceptance.

N.B.—Illustrations of the First Premiated Design in any important architectural competition will always be accepted for publication by the Editor, whether they have been formally asked for or not.

PRICES CURRENT OF MATERIALS.

*** Our aim in this list is to give, as far as possible, the average prices of materials, not necessarily the highest or lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

BRICKS, &c.

Per 1000 Alongside, in River	£ s. d.
Best Stocks	1 16 6
Picked Stocks for Facings	2 10 0

Per 1000, Delivered at Railway Depôt.	£ s. d.		£ s. d.
Flettons	1 14 0	Best Blue Pressed Staffordshire	3 15 0
Best Fareham Red	3 12 0	Do. Bullnose	4 0 0
Best Red Pressed Ruabon Facing	5 0 0	Best Stourbridge Fire Bricks	4 0 0

GLAZED BRICKS—

Best White, Ivory, and Salt Glazed Stretchers	12 7 6	Double Headers	14 17 6
		One Side and two Ends	18 17 6
Headers	11 17 6	Two Sides and one End	19 17 6
Quoins, Bullnose and 4½ in. Flats	15 17 6	Splays and Squints	17 7 6
D'ble Str'tch'rs	17 17 6		

Second Quality £1 10s. per 1000 less than best.

	s. d.	
Thames and Pit Sand	7 0	per yard, delivered.
Thames Ballast	5 9	" "
Best Portland Cement	37 0	per ton, "
Best Ground Blue Lias Lime	20 0	" "

NOTE—The cement or lime is exclusive of the ordinary charge for sacks.

Grey Stone Lime ..... 14s 0d. per yard delivered.
Stourbridge Fireclay in sacks 27s. 0d. per ton at rly. dpt.

STONE.

Per Ft. Cube.

	s. d.
BATH STONE—delivered on road waggons, Paddington Depôt	1 7½
Do. do. delivered on road waggons, Nine Elms Depôt	1 9½
PORTLAND STONE (20 ft. average)—	
Brown Whitbed, delivered on road waggons, Paddington Depôt, Nine Elms Depôt, or Pimlico Wharf	2 4½
White Basebed, delivered on road waggons Paddington Depôt, Nine Elms Depôt, or Pimlico Wharf	2 6½

Per Ft. Cube, delivered at Railway Depôt.

	s. d.		s. d.
Ancaster in blocks	1 10	Closeburn Red Freestone	2 0
Beer in blocks	1 6	Red Mansfield Freestone	2 4
Greenshill in blocks	1 10	Talacre & Gwespyr Stone	2 4
Darley Dale in blocks	2 4		
Red Corsehill in blocks	2 3		

YORK STONE—*Robin Hood Quality.*

Per Ft. Cube, Delivered at Railway Depôt.	s. d.
Scappled random blocks	2 10

Per Ft. Super., Delivered at Railway Depôt.

6 in. sawn two sides landings to sizes (under 40 ft. super.)	2 8
6 in. rubbed two sides ditto, ditto	2 6
3 in. sawn two sides slabs (random sizes)	0 11½
2 in. to 2½ in. sawn one side slabs (random sizes)	0 7
1½ in. to 2 in. ditto, ditto	0 6

HARD YORK—

Per Ft. Cube, Delivered at Railway Depôt.	
Scappled random blocks	3 0

Per Ft. Super., Delivered at Railway Depôt.

6 in. sawn two sides landing to sizes (under 40 ft. super.)	2 8
6 in. rubbed two sides ditto	3 0
3 in. sawn two sides slabs (random sizes)	1 2
2 in. self-faced random flags	0 5

SLATES.

Per 1000 of 1200 at Railway Depôt.

In. In.	£ s. d.	In. In.	£ s. d.
20 x 10 best blue Bangor	13 2 6	20 x 10 best Eureka unfading green	15 17 6
20 x 12 ditto	13 17 6	20 x 12 ditto	18 7 6
20 x 10 1st q'lity ditto	13 0 0	18 x 10 ditto	13 5 0
20 x 12 ditto	13 15 0	16 x 8 ditto	10 5 0
16 x 8 ditto	7 5 0	20 x 10 permanent green	11 12 6
22 x 10 best blue Portmadoc	12 12 6	18 x 10 ditto	9 12 6
16 x 8 ditto	6 12 6	16 x 8 ditto	6 12 6

TILES.

At Railway Depôt.

	s. d.		s. d.
Best plain red roofing (per 1000)	42 0	Best "Hartshill" brand, plain sand-faced (per 1000)	45 0
Hip and Valley (per doz.)	3 7	Do. pressed (per 1000)	42 6
Best Broseley (per 1000)	50 0	Do. Ornamental (per 1000)	47 6
Do. Ornamental (per 1000)	52 6	Hip (per doz.)	4 0
Hip and Valley (per doz.)	4 0	Valley (per doz)	3 6
Best Ruabon red, brown, or brindle (Edw'ds) (pr1000)	57 6	Staffords. (Hanley) Reds or Brindled (per 1000)	42 6
Do. Ornamental (per 1000)	60 0	Hand-made sand-faced (per 1000)	45 0
Hip (per doz.)	4 0	Hip (per doz.)	4 0
Valley (perdoz.)	3 0	Valley (per doz)	3 6

WOOD.

BUILDING WOOD. At per standard.	£ s. d.	£ s. d.
Deals: best 3 in. by 11 in. and 4 in. by 9 in. and 11 in.	15 0 0 ..	16 10 0
Deals: best 3 in. by 9 in.	15 0 0 ..	16 0 0
Battens: best 2½ in. by 7 in. and 8 in., and 3 in. by 7 in. and 8 in.	12 10 0 ..	13 10 0
Battens: best 2½ in. by 6 and 3 by 6	0 10 0	less than 7 in. and 8 in.
Deals: seconds	1 0 0	less than best
Battens: seconds	0 10 0	" "
2 in. by 4 in. and 2 in. by 6 in.	11 10 0 ..	12 10 0
2 in. by 4½ in. and 2 in. by 5 in.	10 10 0 ..	11 10 0
Foreign Sawn Boards— 1 in. and 1¼ in. by 7 in.	0 10 0	more than battens.
¼ in.	1 0 0	"
Fir timber: best middling Danzig or Memel (average specification)	At per load of 50 ft. 5 0 0 ..	6 5 0
Seconds	4 10 0 ..	5 0 0
Small timber (8 in. to 10 in.)	3 17 6 ..	4 0 0
Small timber (6 in. to 8 in.)	3 5 0 ..	3 10 0
Swedish balks	2 12 6 ..	3 0 0
Pitch-pine timber (30 ft. average)	6 0 0 ..	7 0 0

JOINERS' WOOD. At per standard.		
White Sea: first yellow deals, 3 in. by 11 in.	26 0 0 ..	27 0 0
3 in. by 9 in.	24 0 0 ..	25 0 0
Battens, 2½ in. and 3 in. by 7 in.	18 10 0 ..	19 10 0
Second yellow deals, 3 in. by 11 in.	21 10 0 ..	22 10 0
Do. 3 in. by 9 in.	20 0 0 ..	21 0 0
Battens, 2½ in. and 3 in. by 7 in.	15 0 0 ..	16 0 0
Third yellow deals, 3 in. by 11 in. and 9 in.	16 0 0 ..	17 0 0
Battens, 2½ in. and 3 in. by 7 in.	14 0 0 ..	15 0 0
Petersburg: first yellow deals, 3 in. by 11 in.	23 0 0 ..	24 0 0
Do. 3 in. by 9 in.	20 0 0 ..	21 0 0
Battens	15 0 0 ..	16 0 0
Second yellow deals, 3 in. by 11 in.	17 10 0 ..	18 10 0
Do. 3 in. by 9 in.	16 0 0 ..	17 0 0
Battens	12 10 0 ..	13 10 0
Third yellow deals, 3 in. by 11 in.	14 0 0 ..	15 0 0
Do. 3 in. by 9 in.	13 10 0 ..	14 10 0
Battens	11 10 0 ..	12 10 0
White Sea and Petersburg— First white deals, 3 in. by 11 in.	16 10 0 ..	17 10 0
First white deals, 3 in. by 9 in.	14 10 0 ..	15 10 0
Battens	13 0 0 ..	13 10 0
Second white deals, 3 in. by 11 in.	14 10 0 ..	15 10 0
Second white deals, 3 in. by 9 in.	13 0 0 ..	14 0 0
Battens	12 0 0 ..	12 10 0
Pitch-pine: deals	25 0 0 ..	26 10 0
Under 2 in. thick extra	0 10 0 ..	1 0 0
Columbian or Oregon Pine, best quality	23 10 0 ..	26 0 0
Yellow Pine—First, regular sizes	50 0 0	upwards.
Oddments	35 0 0	"
Seconds, regular sizes	36 0 0	"
Oddments	31 0 0	"
Kauri Pine—Planks per ft. cube	0 5 6 ..	0 6 6
Danzig and Stettin Oak Logs— Large, per ft. cube	0 3 0 ..	0 3 0
Small " "	0 2 6 ..	0 3 0
Wainscot Oak Logs, per ft. cube	0 7 6 ..	0 9 0
Dry Wainscot Oak, per ft. super. as inch	0 0 10 ..	0 1 2
¼ in. do. do.	0 0 9 ..	0 1 0
Dry Mahogany—Honduras, Tabasco, per ft. super, as inch	0 0 10 ..	0 1 3
Selected, Figury, per ft. super. as inch	0 1 6 ..	0 2 8
Cuba Mahogany	0 1 4 ..	0 2 6
		upwards.

WOOD (*Continued*).

JOINERS' WOOD (*Continued*)—	£ s. d.	£ s. d.
Dry Walnut, American, per ft. super, as inch	0 0 10 ..	0 1 2
French "Italian" Walnut	0 0 10 ..	0 1 4
Teak, per load (Rangoon or Moulmein)	20 10 0 ..	26 0 0
Do., do. (Java)	19 0 0 ..	22 10 0
American Whitewood planks, per ft. cube	0 5 6 ..	0 6 6
Prepared Flooring, etc.—	Per square.	
1 in. by 7 in. yellow, planed and shot	0 14 6 ..	0 18 0
1 in. by 7 in. yellow, planed and matched	0 14 9 ..	0 18 0
1¼ in. by 7 in. yellow, planed and matched	0 17 6 ..	1 3 0
1 in. by 7 in. white, planed and shot	0 14 0 ..	0 16 0
1 in. by 7 in. white, planed and matched	0 14 3 ..	0 16 6
1¼ in. by 7 in. white, planed and matched	0 16 6 ..	0 8 6
¼ in. by 7 in. yellow, matched and beaded or V-jointed boards	0 12 6 ..	0 15 0
1 in. by 7 in. " "	0 15 0 ..	0 18 6
¼ in. by 7 in. white " "	0 12 0 ..	0 14 0
1 in. by 7 in. " "	0 14 6 ..	0 16 6
6 in. at 6d. to 9d. per square less than 7 in.		

JOISTS, GIRDERS, &c.

	In London or delivered Railway Vans, per ton. £ s. d.	£ s. d.
Rolled Steel Joists, ordinary sections	9 0 0 ..	10 0 0
Compound Girders, ordinary sections	11 0 0 ..	12 0 0
Steel Compound Stanchions	12 0 0 ..	13 0 0
Angles, Tees, and Channels, ordinary sections	11 0 0 ..	12 0 0
Flitch Plates	11 0 0 ..	12 0 0
Cast Iron Columns & Stanchions, including ordinary patterns	8 10 0 ..	9 0 0

METALS.

	Per ton, in London. £ s. d.	£ s. d.
IRON— Common Bars	9 0 0 ..	9 10 0
Staffordshire Crown Bars, good merchant quality	9 5 0 ..	9 15 0
Staffordshire "Marked Bars"	11 0 0 ..	—
Mild Steel Bars	9 5 0 ..	9 15 0
Hoop Iron, basis price	10 0 0 ..	—
" " Galvanised	17 10 0 ..	—
(* And upwards, according to size and gauge.)		
Sheet Iron Black— Ordinary sizes to 20 g.	10 5 0 ..	—
" " 24 g.	11 5 0 ..	—
" " 26 g.	12 15 0 ..	—
Sheet Iron, Galvanised, flat, ordinary quality— Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 20 g.	15 10 0 ..	—
Ordinary sizes to 22 g. and 24 g.	16 0 0 ..	—
Ordinary sizes to 26 g.	17 0 0 ..	—
Sheet Iron, Galvanised, flat, best quality— Ordinary sizes to 20 g.	18 10 0 ..	—
" " 22 g. and 24 g.	19 0 0 ..	—
Ordinary sizes to 26 g.	20 10 0 ..	—
Galvanised Corrugated Sheets— Ordinary sizes, 6 ft. to 8 ft. 20 g.	15 0 0 ..	—
Ordinary sizes, 22 g. and 24 g.	15 5 0 ..	—
Ordinary sizes, 26 g.	16 15 0 ..	—
Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. to 20 g. and thicker	12 10 0 ..	—
Best Soft Steel Sheets, 22 g. & 24 g.	13 10 0 ..	—
Best Soft Steel Sheets, 26 g.	15 10 0 ..	—
Cut Nails, 3 in. to 6 in. (Under 3 in., usual trade extras.)	11 0 0 ..	11 10 0

LEAD, &c.

	Delivered in London. £ s. d.	
LEAD—Sheet, English, 4 lb. and up	23 5 0 ..	—
Pipe in coils	23 0 0 ..	—
Soil pipe	26 0 0 ..	—
Compo pipe	26 0 0 ..	—
ZINC—Sheet—	In casks of 10 cwt.	
Vielle Montagne	28 5 0 ..	—
Silesian	28 10 0 ..	—
Zinc, in bundles, 1s. per cwt. extra.		
COPPER— Strong Sheet per lb.	0 1 1 ..	—
Thin " "	0 1 2 ..	—
Copper nails "	0 1 0 ..	—
Copper wire "	0 1 0 ..	—
BRASS— Strong Sheet "	0 1 0 ..	—
Thin "	0 1 1 ..	—
TIN—English Ingots "	0 1 9 ..	
SOLDER—Plumbers' "	0 0 10 ..	—
Tinmen's "	0 1 1 ..	—
Blowpipe "	0 1 3 ..	—

ENGLISH SHEET GLASS IN CRATES OF STOCK SIZES.*

Per Ft. Delivered.

15 oz. thirds	2½d.	26 oz. fourths	3½d.
" fourths	2d.	32 oz. thirds	5½d.
21 oz. thirds	3½d.	" fourths	4½d.
" fourths	3d.	Fluted Sheet, 15 oz.	3d.
26 oz. thirds	4½d.	" 21 oz.	4d.

ENGLISH ROLLED PLATE IN CRATES OF STOCK SIZES.*

Per Ft. Delivered.

¼ Rolled plate	2½d.
¼ Rough rolled and rough cast plate	2½d.
¼ Rough rolled and rough cast plate	3d.
Figured Rolled, Oxford Rolled, Oceanic, Arctic, Muffled, and Rolled Cathedral, white	2½d.
Ditto, tinted	5d.

* Not less than two crates.

OILS, &c.		£ s. d.
Raw Linseed Oil in pipes	per gallon	0 2 3
„ „ „ in barrels	„	0 2 4
„ „ „ in drums	„	0 2 6
Boiled „ „ in barrels	„	0 2 6
„ „ „ in drums	„	0 2 9
Turpentine in barrels	„	0 2 9
„ in drums	„	0 2 11
Genuine Ground English White Lead, (In not less than 5 cwt. casks.)	per ton	29 15 0
Red Lead, Dry	per ton	28 0 0
Best Linseed Oil Putty	per cwt.	0 9 0
Stockholm Tar	per barrel	1 12 0

VARNISHES, &c.	Per gallon. £ s. d.
Fine Pale Oak Varnish	0 8 0
Pale Copal Oak	0 10 6
Superfine Pale Elastic Oak	0 12 6
Fine Extra Hard Church Oak	0 10 0
Superfine Hard-drying Oak, for seats of Churches	0 14 6
Fine Elastic Carriage	0 12 9
Superfine Pale Elastic Carriage	0 16 0
Fine Pale Maple	0 10 0
Finest Pale Durable Copal	0 18 6
Extra Pale French Oil	1 1 0
Eggshell Flating Varnish	0 18 0
White Pale Enamel	1 4 0
Extra Pale Paper	0 12 0
Best Japan Gold Size	0 10 0
Best Black Japan	0 16 0
Oak and Mahogany Stain	0 9 0
Brunswick Black	0 8 0
Berlin Black	0 16 0
Knotting	0 10 6
French and Brush Polish	0 10 0

TENDERS.

Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than 6 p.m. on Wednesday.* [N.B.—We cannot publish Tenders unless authenticated either by the architect or the building owner; and we cannot publish announcements of Tenders accepted unless the amount of the Tender is stated, nor any list in which the lowest Tender is under 100l. unless in some exceptional cases and for special reasons.]

* Denotes *accepted.* † Denotes *provisionally accepted.*

BILLERICAY.—For making-up Kavanagh-road, for the Rural District Council:—
W. & C. French, Buckhurst Hill*... £1,855 17 4

BISHOP AUCKLAND.—For sewage disposal works, etc., Witton Park, for the Urban District Council:—
Walton Bros., Crook* £1,790

BROMLEY.—For street works, for the Town Council:—
E. Free & Sons, Mooreland-road, £576 10s. 9d.; Weston-road, £534 1s. 9d.; Weston-grove, £512 16s. 6d.

CHARNDON.—For the erection of Charndon Council School, for the Education Committee of the Bucks County Council. Mr. C. H. Riley, Education Sub-Office, Aylesbury. Quantities by Messrs. W. T. Farthing & Son, 26, Strand, W.C.:—

A. A. Clarke	£1,198 4 2	G. Tombs & Sons	£851 16 9
Webster & Cannon	923 0 0	Crook & Judd, Wasdesdon*	766 11 7
F. J. Walker	920 0 0		

EALING.—For extension of administrative block at the Isolation Hospital, for the Ealing Town Council:—
F. H. Hidden & Co., Ltd. £199 10

EAST GRINSTEAD.—For alterations to bath at workhouse, for the Board of Guardians:—
T. & G. Smith* £179 14

NEW MALDEN.—For street improvement works in Selwyn-road, for the Urban District Council:—
J. Mowlem & Co., Ltd. * £632 4 1

NEW MALDEN.—For supplying and laying artificial stone paving in Selwyn-road, for the Urban District Council:—
J. Wainwright & Co., Shepton Mallet* ... £201 5

NEW MALDEN.—For street works in Melrose-gardens, for the Urban District Council:—
J. Mowlem & Co. (street works)* £521 1 3
J. Wainwright & Co. (artificial paving,)* 159 5 0

NORTHAMPTON.—For tramway extensions, for the Corporation:—

Wimpey & Co.	£26,208 5 8	Foster, Ltd..	£22,490 7 8
R. Finnegan	25,407 19 10	G. P. Trentham	21,486 0 0
A. A. Clarke	24,835 0 0	G. Law	21,319 0 0
Griffiths, Ltd.	24,065 17 3	A. Fidler	20,922 0 0
Clough, Smith, & Co., Ltd....	23,409 8 8	Pearce, Ltd.	20,612 18 10
Dick, Kerr, & Co., Ltd....	22,571 7 0	Stark, Ltd., Glasgow†...	20,352 11 10

[† Recommended for acceptance.]

ST. MAWES.—For the erection of ten houses, for the St. Mawes Co-partnership Cottage Society:—
Concrete Block Co.* ..... £158 10 per house.

SAWBRIDGEWORTH.—For the erection of the new Council Offices to be built over the Fire Brigade Station:—

Robinson	£295 0	Burton & Son	£265 0
J. Day	295 0	Markwell & Sons ..	252 10
Glasscock & Son's Successors	290 0	H. Rook, Cambridge*	225 0
Hockley	286 0		

SLOUGH.—For the enlargement of the Slough Secondary School, for the Education Committee of the Bucks County Council. Mr. C. H. Riley, Education Sub-Office, Aylesbury. Quantities by Messrs. W. T. Farthing & Son, 26, Strand, W.C.:—

Hacksley Brothers	£4,212	G. Biggs & Sons	£3,750
Webster & Cannon	4,028	J. T. Harris, High Wycombe*	3,669
H. Street	3,764		

SOUTHAMPTON.—Four cottages at the Otterbourne Waterworks. Mr. E. C. Rodda, Waterworks Engineer, Town Hall, Southampton:—

H. Stevens & Co.	£1,435 0 0	Holly & Herbert	£1,272 0 0
Jenkins & Sons, Ltd.	1,394 0 0	W. A. Fussell	1,264 6 10
J. E. Franklin & Co., Ltd....	1,337 16 4	Hales & Sons	1,230 0 0
A. Payne	1,334 17 9	W. Saunders..	1,149 0 0
		Pitfield Bros., Eastleigh*...	881 5 0

STAFFORD.—For erection of 1,000,000 ft. capacity gas-holder and tank, for the Corporation:—
C. & W. Walker, Ltd.* £11,841

STAFFORD.—For foundations for gasholder, for the Corporation:—
F. Esphey & Sons* £896

STONY STRATFORD.—For the enlargement of Stony Stratford Council School by 120 places, for the Bucks Education Committee. Mr. C. H. Riley, Education Sub-Office, Aylesbury. Quantities by Messrs. W. T. Farthing & Son, 26, Strand, W.C.:—

A. A. Clarke	£1,210 0
T. Betts	1,098 0
W. Heap	1,085 16
Webster & Cannon	1,068 0
J. S. Cowley & Son, Stony Stratford*	1,047 0

WARBLINGTON.—For construction of sewerage and sewage disposal works, pumping station, etc. Mr. A. J. Martin, M.Inst.C.E., 7, Victoria-street, Westminster, S.W.:—

T. Wilkinson & Co.	£13,643 0 0	C. Bentley, Havant*	£12,554 3 8
T. W. Pedrette	12,770 18 1	A. G. Osenton	11,933 0 0

WREXHAM.—For extension of Acton sewer to the garden village, for the Wrexham Rural District Council:—

T. Harris	£1,500 0 0	Jukes & Co.	£836 9 0
F. Hayes	1,106 1 3	Miles Bros.	820 15 9
R. Williams...	871 0 10	P. Trentham, Birmingham*	800 0 0
Humphreys ..	866 6 6		
H. A. Jones...	827 0 0		

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